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Thursday, July 15, 1982

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DJ "AI" to back solid state memory device

by Kevin Cabill
SOMERSET based D!"Al", the
backers of The Last One, see to finance another controversial pro-

ject, the 9.9-gigabyte solid state memory device from Micro Xeno. Birmingham based Micro Xeno last week announced that a "considerable" sum in advance royalty payments and goodwill investment had come from DJ "Al" in Los

Angeles.
The payments will enable the company to fulfill orders placed by Pleasey and Cifer, and to build a number of demonstration machines which will be shown to the public within the next few

The financing follows a pro-tracted cash crisis at Micro Xeno which has led to the departure of s-number of staff and a halt in pro-

The solid state memory, invented by Micro Xeno's chairman Bart Kahn, is a revolutionary application of coding techniques to abroad. the opportunities created by

microprocessors.

Kahn has been developing the charged pucket memory, as the device is called, for over three years, and has produced specifications which show that the machine operating at very high speeds will encode and decode 9.9 gigabytes of data in real time, and store the coding in just eight Kbytes of latch memory when the memory is switched off.

Details of the machine were revealed in a story in Computer Weekly on March 18 this year, and Kahn released a specification to the paper which has since been circulated to a number of experts.

The consensus view so far is that the device is revolutionary and s principles which are untested

memory device.



has been unable to make a device available for s complete test by external egencies, which be now bopes to do later this year using the DJ"Ai" money.

A number of financial institu-

tions have been to see Kahn but have not so far offered any finance. No financing institution has turned Kahn down outright, but most have simply adopted a "wait and see" attitude. Despite these setbacks, commonplace with new UK inventions, Kabn has persisted in his search for finance.

Ferranti at one time showed a significant interest in the project but bas lately withdrawn and de clined participation in a BBC pro gramme already made about the

The device, which could wipe out the magnetic disc market overnight if it performs according to specification, will now be buil

KAHN . . . Persisted in search for

Diablo olluntti Hazeltina

Thatcher speaks for science

(100000 rentronics THE government's top person for , **្នាញាជា centronics** ្ន science and technology is to be Prime Minister Margaret

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Less than one sixth of R&D spending by MoD goes on pure research.

MoD speeds technology sharing

by Nicholas Enticknap
THE Ministry of Defence is to speed up the process of technology transfer from military R&D establishments to industry. In pursuit of this aim It held a one-day seminar last week, discussing with senior management of some 40 large companies and financial institutions how this might be

The companies represented sll sectors of industry, and included CAP Scientific, Cossor Electronics, Ferranti, Plessey Electronic vatems, Racal Electronics and inclair Research.

Ministry spokesmen said that two main messages emerged from the seminar. For the Ministry itself, efforts would have to be made to translate details of its developments into appropriate manufacturing and marketing terms, so that industry could more readily and accurately appreciate

mons in response to s recom-mendation by the House of Lords Select Committee on Science and

Technology that a minister should be specially designated by the Prime Minister to speak for science and technology.

That cher said that issues may arise which straddle the responsibility of several ministers to such an eatent that it would not be sensible to ask any one of them to take the lead.

were available to British com-panies who thought they would be

light of the present government's policy of reducing public expenditure as far as possible, and more narrowly in relation to the continuing debate on the defence estimates, which has gained a new lease of life since the Falklands

Defence R&D spending currently runs at £1,840 million s year, of which £300 million is pure research and £1,540 million development, meaning very largely the procurement of military equip-ment. The major spin-off from this expenditure at present is arms sales, currently running at £1,800 million a year.

Seen in this light, it will be realised that the new MoD policy does not mean an increase in re-

THATCHER . . . New duties.

Computer financing

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came under some criticism, for example, for its laggardly approach to Ada developments. The Department of Industry has taken the lead in promoting joint Ada able to exploit them.

The initiative can be seen in the projects with industry, in contrast with the US situation where the

> he prime mover. Ministry spokesmen held out no hope of a change here, saying only that negotiations about Ada projects were currently taking place but declining to give details or

Returning to the question of technology transfer generally, the Ministry claimed to have a good record on this. Spokesmen waxed lyrical on liquid crystal displays, carbon fibre composites and a host of even more esoteric products which had found their way into industrial products.



Univac's first relational system

by Kevan Pearson SPERRY Univer has taken the in the mainframe stakes which week's launch of the first his fledged relational database men based on its highly respected life

series operating system.

The company has also imduced a new top end, was made processor, the 1100%. The new relational date

system is contained in the laversal Data System (UDS 187. and includes multi-user specifor data access and updates all common deadlock system in in integrity by providing locious

The UDS system is of moth design, enabling user a vin those parts of the system by ID ally need, the company up bi compatible with all life ma-mainframes, from the ara life? downwards, and should he reliable in the second quarter of [9].

The company's new poors instructions per second campin a tightly coupled four process system. It is Univertified at cooled machine. Department of Defence has been

The atchitecture of the series has been extended to be up to 64 megabytes of realization and up to 1,144 megabyte de tual storage. Memory it = mented in 64-Kbytechips. The company announced

same time a new disc plant the 8480, with a capacity di-gigabytes. It can handk is veries communication der Also new is Advise 1100,14 level applications derestions. Both Advise and IDia 1 used with other University



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NEWS BRIEF

US spying

is dropped

apionage case. One federol attorney in San

Francisco, where the charges were

Sord shares sale

APAN'S No 2 micro cumpar

Sord Computer Systems, is muk-ing a limited sale of its shares on

August 20 at £140 for the

nominally £1 shares. This is the highest price ever paid for a stock

its UK offices in August, has two

American venture capital finan-

ciers and one from the UK

Boost for ME29

ICL's ME29 range is set for

unjor boost with the release of a

new version of the TME operating

system which will do away with

the need to use the antiquated and inefficient 2903 job control language for the running of programs.

DEC connections

11 Tokyo, Sord, which will open

charge

Swift denies reports that 'personal' users crack the system

ward Karten

IYONE with a personal compucan penetrate Swift, the interasonal banking money transfer syt m, according to allegations by an umerican magazine and US

Bu: Gunnar Stromberg, speaking from the Swift headquarters in Brussels, said the claims made in MIS Week, and statements by some US security consultants, were "rubbish".
According to Stromberg the

Swift system has so many levels of control and encryption that it would not be worth anyone's while rying to crack the system. t would be far easier to go into

bank and crack the internal controls," he said.
The method outlined in the magazine is not based on anything

more sophisticated than attempting to confuse staff in a receiving

bank into accepting unverified messages at busy times.

This is done by intercepting and changing one letter of an incoming message at random, and upping the frequency of this event until the receiving bank gets used to the idea that there are transmission problems in the system.

Then on a Friday, as the bank is closing for business, in comes a bad message, but in the rush to

INSIDE THIS WEEK'S ISSUE

US confiscates Soviet-bound hardware 3

Pace hots up for plug-compatibles20

Computer Supplies three-page feature......21/23 Systems Thoughts

system is error prone, a bank official makes the requested payment rather than lose interest

"I think this scenario would work," saya Bob Jacobson, head of New York consultancy Interna-tional Security Technology. Swift, the Society for

Worldwide Interbank Financial Telecommunications, accomplishes its goal reliably and economically, and has done a good job, Jacobson adds. But, in the year since Swift was set up by a London-based consultancy, tech-nology has moved forward in capability and dropped in price. Swift bas not done an assiduous job of

keeping up, Jacobson said.
"Swift's security is actually very good," said Harry Wood, a former FBI computer expert and bead of security consultants Wood Butko billion for the first time, and the security consultants wood Butko billion for the first time, and the sales in the second quarter rose by 23%, while the profit from its ren-

over the weekend.

promised full consultation on the implementation of his proposals.

Until details had been made

A more cautious reaction came from BT itself. A statement from the board said they had not been consulted about the decision, but the Secretary of State had

market disciplines and would be in

to be 'major THE US Justice Department has dropped charges against one of the Mitaubishi employees indicted recently in the "Japscam" industrial election issue' brought, indicated that the charges against Tomizoh Kimura had been dropped because Kimura might not have known he was engaging in illegal activities.

known the board could not express any general view, but they would seek to ensure that the changes led to BT having a stable basis for its to be sold to the public after the next election, if the Conservatives stay in power. The government published its White Paper this week on how it intends to sell off guard staff interest. BT in one or more blocks to the private sector.

A statement in the Commons on Monday by Industry Secretary Patrick Jenkin was greeted by the immediate opposition of Shadow Labour Minister Stan Orme, who said the sale of the State-owned asset would become a major elec-

Jenkin said he believed that BT freed from government cuntraints would be a new expansionary force

BT was already leading the in-formation technology revolution in the UK and could become a major

world force, be said.

But Orme protested loudly at the government's plans and said the Labour Party would fight to maintain a national telecomms network under sublic scatter of P.T. investment would mean still work under public control of BT. igher charges for the customer.

traditional forms of government

control. BT would be subject to proper

cury networks.

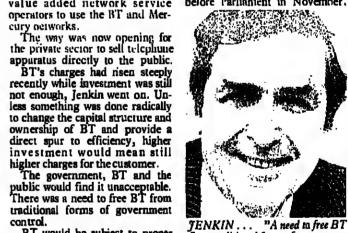
responsive to customer needs like

Licensing will also be reformed so as to end BT's exclusive privifuture development, opportunity to compete fairly in the market. lege and there will be a new Office serve its custumers well, and safeof Telecomms, modelled on the Office of Fair Trading, under a director-general appointed by Jcn-The statement said that, given right conditions, the board of BT would welcome freedom from

60

the web of guvernment control and cations, "to ensure that everyone, including BT, plays to the rules of In his Commons statement Jenthe game," May, 1984. kin also announced that he intended shortly to Issue a general

Enabling legislation will be put before l'arliament in November. licence permitting all hour fida value added network service operators to use the BT and Mer-



VIEWDATA specialist house Aregon yesterday announced a new gateway product, IGS-1, to proride links to national networks for Digital Equipment users. Aregon already has five orders for its new system from companies in the US, Italy and the UK. Cost of the system, which will provide

IBM profits hit \$1bn as new product sales soar

by Kevan Pearson IBM effectively ended rumours of poor orders for its products with a

massive 24% rise in second quarter profits. Sales in the second quarter

level profits would have reached over \$1.9 billion. The result provided a much-

needed boost to IBM's shares, which closed at \$64.5, one dollar

Virginia. "The weaknesses are in the bank's themselves, not within Swift internally.

"Often, bank wire rooms and their security and technology are not what they might be." Wood added that Swift could not be expected to act as a politerian local its users, "and many large banks have taken or are taking steps to impose a higher standard of security."

success is attributed to sales of new products, principally the 3081 and leasing business rose by only 6%. Ourright sales are usually only 6%. Ourright sales are usually stronger at the beginning of a product's life cycle, with rentals taking over as a product nears replacement; but the slze of the improvement caught US financial and their security and technology are not what they might be." Wood added that Swift could not be expected to act as a politerian to all its users, "and many large banks have taken or are taking steps to impose a higher standard of security."

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Travel agents all at sea

by Andrew Thomas TRAVEL agents are baffled wheo it comes to using computers, says a report from the Travel Associa-tions' Consultative Council

tions' Consultative Council (TACC).

Keith Hunter, chairman of TACC's working party on computer/technology matters, says there is a pressing need for unbiased technical advice on system choice. The individual ageot is generally confused by the competing claims of maoufacturers.

"With little technical knowledge on which to base a decision, a sig-nificant number of agents is admit-ting defeat," says Hunter. TACC reports that travel age ots

are still traing computer aids only for the provision of information and that there is still a long way to go before the technology is widely used for ticket issue and reservatioos, internal accounting and ad-

Between a third and a half of UK travel agents have some form of computer inatallation, the most



High costs could put paid to shift leader's unfair dismissal' case

question to investigate.

by Andrew Thomas
SACKED in March for allegedly exceeding his authority as a shift leader, Ralph Ackad took his employers, Glaxo Operations UK, the an industrial tribunal, claiming unfair dismissal. But he now finds that the wheels of the British legal system grind exceedingly alowly, and could cost him a great deal of money.

Ackad was employed at Glaxo's Greenford headquarters for five years and part of his responsibility was to monitor invalid attempts to access the online systems running on three Hewlett-Packard HP 3000 machines. The standing instructions to the three shift leaders were to log each invalid password warning appearing on the console and to notify the operations mao-

the terminal in question by means of a command which, according to site procedures (written by

Ackad), should only be used by authorised personnel. He then telephoned the department in "Those procedures are written

for the guidance of operaturs," Ackad said. "Shift leaders should use their initiative."
Glaxo operations supervisor Christopher Neathey, himself an ex-shift leader, disagrees. At the hearing last week he stated: Operators should follow orders. It's not part of their job to question

or change instructions."

Neathey also claimed a poor work record for Ackad, including lateness (the longest time stated at the hearing was 13 minutes), suspect quality cootrol, and "behaviour not expected of a shift leader". This last statement refers

to an incident where Ackad was

signed off work by his doon. It was spotted in Glaxe's spond social club one evening.

"The doctor told me to say work, not to say in my hou," comments Acked.

Neathey bersted Acked ing "over-cautious" in decay with jobs failing overnight of them went on to sate that a should not use his indistrict in matter of the invalid parent incident which led disciplish dismissal.

Customs Commissioner William Voo Raab said that the seizure on At the end of the two in scheduled for the hearing, Gas scheduled for the hearing, Gas counsel was only half way head the evidence of the scood of five witnesses, and Achad hap to take the stand.

The tribunal adjourned to hearing until September this little progress having been make.

Ackad, who does not qualify legal aid, claims that the cas he siready cost him £1,000. July 6 had been a joint operation of US, Canadian and German agents. He added that 466 seizures had been made, part of the Resgan Admioistratioo effort aimed at stopping the transfer of high-tech

ICL networks pioneer joins Computervision

German client.

US confiscates

'Soviet-bound'

hardware

by Howard Karten
THE US Commissioner of Cuatoms has seized some \$400,000 worth of computers in West Germany, charging that the hardware was set for shipment later to the Soviet Union.

As of last Thursday, many details of the case remained murky.
The Justice Department, smartotly wishing to keep a low

sppareotly wishing to keep a low profile, would not comment on the

by Boris Sedacca FOUNDER of ICL's telecommuoicatioos networking strategy, Gordoo Peake, has found a new

He has joined Computervision, one of the world's leading manufecturers of computer-aided design and computer-aided manufactur-ing equipment, as European ser-vices and support manager.

PEAKE . . . "IPA a way of life."

IPA is ICL's answer to IBM's System Network Architecture. "Having sold it to two successive ICL managing directors, Chris Wilson and Robb Wilmot, it became something of an anti-cli-max," said Peake.

reach Langdon, or either of his

offices for comment, were

"It is now nothing more than a giant development cycle and it is up to Wilmot now to see it through. You don't market IPA—it is too abstract, a way of life. As a project it will never be quite finished, like SNA which is a never-

coding saga."

Peake says he was approached with an "exciting proposition" from the company. "I know nothing about CAD/CAM and they are the world's number one supplier so I thought it would be a good dea to join them."

Peake's new responsibilities will cover software development, including the communications ele-ment of Computervision's Graph-ics Network Architecture.

The job demands an unde standing of a number of areas like ngineering, architecture, building construction and printed circuit board design and my job is to em ploy specialists in these areas so that, for example, an architect will talk to an architect," Peake said.

Go-ahead for Citibank

THE Federal Reserve Board, a soverament agency charged with supervising and regulating US banks, last week approved a three-year-old request of Citicorp to cater the data processing and data transmission business.

also supply DP services. Citibank is a large DP user and has developed a considerable body of inbouse expertise.

Federal Reserve Board regulations limit the scope and nature of noo-banking activities in which

been opposed in its efforts primarily by Adapso, the Association of

sater the data processing and data transmission business.
For three years Citibank, one of America's five large commercial banks, has sought permission to provide the services to its customers and other banks. The bank has been opposed in its efforts primary.

Some that the scope and nature of non-banking activities in which banks and bank bolding companies can engage. The FRB ruled that Citibank, through its new subsidiary to be called Citichare, must limit its DP activities to "banking, financial and economic details".

Data Processing Service Organisations, representing firms which ing.

French urge end to US domination of data flow

by Jack Gee
THE Preoch government has
called for urgent action to prevent
IBM's coding norms being given
international acceptance, in order
to curb US domination of data hardware with poteotial military Apparently MLPI Business

flows between countries.

The appeal was made in a government report on cross-border data movements by Alain Madee, a Systems of Toronto, Canada, and Phoenix, Arizona, exported four DEC minicomputers for a West Ministry of Industry official. Ma-dec stressed that users of the IBM The computers were seized in West Germany, according to oews reports, where they were allegedly data code were required to identify nemselves to the State and Dc-Glen Langdon, president of MLPI, was quoted in news accounts as saying that the systems were made in 1975 and thus of fence Departments in Washing-

The report also emphasised that, with increasing data traffic between nations, a government's economy, defence and even its ciua breakdown of computer opera-

tions on a big scale.

A political crisis or act of terrorism which interrupted the flow of
data or enabled secret information power could leave a country powerless said Madec. The situa-tion could lead to economic war-fare comparable to a blockade or trade embargo, he added.



Special rules for medical records -**Minister**

REGULATIONS providing special protection for medical records may be needed when action is taken to implement the Government's White Paper on data protection, Timothy Raison, Minister of State at the Home Office, told MPs.

He reported that wide-ranging

He reported that wide-ranging consultations, including the medi-cal profession, are still taking place. Renee Short (Lab, Wolver-hamptoo NE) wanted to know whether the regulations oo compu-terised personal health records would cover maoual systems; and whether applications by the police for information to be made avail-able to them about an individual's personal health data would only be agreed to after the patient' consent had been obtained

Raison said the government's proposals applied only to personal data processed by automatic means. It would not be in the inment to place a statutory require-ment on data users who made information available to the police for the purposes of the prevention or detection of crime to seek the

French technology centre brings computers to the Third World

THE shroud concealing the activities of the mysterious and controversial Centre Mondial has been alightly lifted by Danny Hillia, a speaker at SPL's Fifth Generation conference who is working at the centre on secondment from MIT.

The centre was set up to fulfil a commitment of President Mitters.

Computer technology with Third World Countries,

To translate this ideal into reality, Mitterrand appointed a board of control consisting of a number of prominent French politicians under the chairmanship of Jeon-Jacques Servan-Schreiber.

commitment of President Mitter-rand, who declared at last year's Sicob exhibition that France would be established a world

Servan-Schreiber's ideas in his book The World Challenge which are controlling the efforts of the Centre Mondial. centre for computing development as soon as possible. Its major objective was to be the sharing of

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In this he proposes that every child should be given a terminal at an early age as a vehicle of per-Wilkes Computing

an early age as a vehicle of personality development.

Papert's fifth generation proclivities have been emphasised by the
appointment of MIT professor Nicholas Negroponte as director general of the centre. Negroponte
comes from the MIT Artificial Intelligence Laboratory, as do Hillis
and a number of other workers at
the Centre Mondial.

Another luminary at the centre

To implement this view,

Another luminary at the centre microcomputer specialist Allen Ksy, seconded from video games pioneer Atari. Technical innovaion is thus at least as important an spect of the centre's activities as its social and political motivations.

Unlike other French research centres, the Centre Mondial is ponsored directly by the Presi-

ing and producing physical objects. He argues that Third World nations can pass straight into the and SERC, and has had minimal contact with these and other relevant bodies. As a result, it has information and service era, given the right means, without passing sroused coosiderable disquiet, not to mention professional jealousy.

bowever, Servan-Schreiber has Hillis has now given some de-tails of the Centre's activities. In called on the services of another visionary, Seymour Papert, who is known for his work in lifth generaone project, the Centre is providing technical help to a mass movetion-type natural language systems and has also written a book, ment in Marseilles, France, which sims to give everyone over a cer-tein age their own computer. Marscilles hardly qualifies as the Third World but a similar project

Third World but a similar project is taking place in the former French colony of Senegal. Children from varied backgrounds and economic classes there are being given personal computers as soon as they reach school age. Parallel projects are taking place in a curious mixture of other places, ranging from Boston to Arabia, Geneva to Japan and California to India.

"The ideal is ro make children as familiar with computers as they are with tables and chairs," explained Hillis. "Those of us born before this age have missed out — computers will always be to us as automobiles were to my greatgranny. The older generation views information technology as a



"The older generation rees information technology as a corruption."

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Communications

Curtain goes down on costly UK mistake

by Kevan Pearsoo
THE costlicst blunder in British software saw its final stage last week when Insac, the taxpayer-funded scheme to sell UK software in the US, was closed for good. The company had looked like going down since the sale of its American subsidiary in November

Designers, originally members of the NEB fold, and suppliers to Insac, were sold off into private hands, and subsequently terminated their agreements with the company.

Within 18 months the company had looked like going down since the sale of its American subsidiary in November

The demise of Insac does not mean that British software is unsuitable for the overseas market. On the contrary, there are many notable examples of British export success — BIS's Midas banking system, and Micro Focus' CIS Cobal, for example.

So just where did Insac go

The company ran into serious problems within two years, when n 1980 both SPL and Systems

US software

house pulls

out of UK

funded scheme to sell UK software in the US, was closed for good. The company had looked like going down since the sale of its American subsidiary in November 1981 to the California company Britton-Lee.

Insac was act up in 1978 with EZU million from the now equally defunct National Enterprise Board. Its purpose was to promote and sell British software expertise overseas, particularly in the lucrative American market.

Insac was act up in 1978 with EZU million from the now equally defunct National Enterprise Board. Its purpose was to promote and like going distance of the Shadow the company had lost the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppliers, Altergo, producer of the Shadow the products of two of its other major suppli

ts purpose was to promote and sell British software expertise overleas, particularly in the lucrative american market.

But Insac never had the full support of the British software in the self-british software self-british software expertises overthe self-british software in the self-british software in th

was sold to Britton-Lee, and any hope of its pursuing its original intentions was irretrievably lost.

wroog? Firstly, it was not equipped to match the high pressure sales techniques of the American software industry and spent next to nothing on advertis-ing. Then, it did not have the right people in the US leading the sales effort. And there were problems with suppliers, with behind-thescenes accusations and counter-accusations about Insac's sales efforts and the suppliers' support for Insac.

In short, Insac never really had a

BTG £230,000 in academic prizes

by Robert Parry
US software house Professional
Software, originator of the
WordPro series of word processing
packages for Commodore Per microcomputers, has pulled out of the UK. Its wholly owned sub-sidiary in Potters Bar has shut, and distribution of the software is now handled by Wego Computers in

Wego was one of the 100 or so dealers selling Professional Software products as retailers, and "became quite involved with the products and with the manufacturer" says Wego's sales manager Geoff Duck, WordPro is second runner in the Commodore word processing field, behind Wordcraft hich has a firm hold on the mar-

Wheo Wego heard that Professional Software was looking to change its UK marketing arrangements, it approached Professional Software in the US and put itself forward as a potential distributor.
"It seems the US manufacturer now prefers distribution to its

own operation," comments Duck.
Professional Software started casting around for other means of seiling its products about four months ago, after the managing director of the UK arm, Bob Webb, left to become distribution Electronics. The departure of one of the sales team a month later strengthened the move to appoint-

"There are problems for s US company selling into Europe," says Webb, "particularly in reaction time. The UK is very demanding of its software, and dealing through a distributor often leads to much better relations. A distributor can make more dedistributor can make more de-manus on the manuscrurer."

lagging behind Worderaft is threatened by new word proces-aing packages coming on to the market for Commodore machines.

to influence North American standards for videotex (viewdata and teletext) through the American National Standards Institute's videotex working group has been holding joint meetings with an equivalent Canadian working group to develop a draft proposal for text and graphics character codes to be adopted as standard for both countries.

Canadian Standards Association meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as are those US meetings are closed to outsiders, as In addition to handling WordPro, Wego will distribute Power, programming tool kit firm ware for the Commodore range. It is a Commodore dealer, and sells bardware from Apple and and sells bardware from Apple and California Computer Systems. On the software side it also has a range of modules it uses to put together bestwike applications packages for Commodore systems.

TENDER

East Sussex County Count Brighton Polytechnic Tendeva are invited for 65 CCT 100 Visus
Display Units to enhance the meinifer computer. Tander forms returnable I August 4 and further details from Countidation Officer, P.O. Box 4. County Hall, Lewis, BN7 183 (Ref. Supp/PGCT)

by Kevin Cahill

LAST week was brickbats week at the British Technology Group, following the publication of the annual report, and losses. But this looks like bouquets week with the BTG handing out £230,000 in prize money for s series of commercial developments produced as a result of academic research.

The system is a move away from the

a result of academic research.

The prize-giving ceremonies, in London, produced a crop of well engineered, marketable products from a range of institutions, mostly universities.

First prize of £50,000 went to a team from the University of Southampton led by Professor William Gambling and Dr D. N. Payne, who developed two instruments for use in optical fibre communication brightst manufacture. tion product manufacture. Via a company they have set up, York Technology, the two academics have successfully built and sold £250,000 worth of the equipment, mostly abroad, since the beginning

The key computer industry win-ner was Professor Martin Healy's 16-bit distributed network compu-ter built by Future Technology Systems of Beith, Ayrshire. The machine based on 8088 and 8086 microprocessors, was up and run-ning for the award winning cere-mony and has been adopted for sale by Travel Systems for their Association of British Travel

both countries.

for comment this week to the US

David Shear.
Since its inception in 1980
Future Technology Systems has
involved itself mainly in building
its own machines, but is now
building for the OEM market and
other "own brand" customers,

according to Healy. Two other computer-based ap-lication devices won awards of £10,000 each. One is n Smart Arm robot designed by George Carter of the University of Durham and built by Systems Control of Thor-naby, Cleveland. The Smart Arm

naby, Cleveland. The Smart Arm robots are small, low-cost, and driven by easily programmable software to enable tasks to be varied.

Professor Michael Hampshire and a group from the University of Salford won £10,000 for a single card computer control system for annulication to low volume. application to low volume machinery, to be produced by a University of Salford research company called PMJH Electron-

The competition, staged over two years, attracted 118 entries, 99 from universities and 15 from polytechnics.

a very cut-throat business," he added.

The draft is called the North
American Presentation Layer
Protocol Syntax (PLPS), defining
its relationship to the International
Standards Organisation's sevenlayer Open Systems Interconnection model. It is to be presented
for comment this week to the IIS

national group of CCITT, the in-

national group of CCITI, the international standards setting body for telecommunications.

Entropean interests seem to have stayed away under the missperhension that the meetings were closed to foreigners. Prestel development chief Keith Clarke said:

The result has been a draft proposal which does not relate well to the Faropean standard, according to X3L2. I chairman Toon Hastings of Digital Equipment. One of the two sets of control characters is completely different, the graphics scheme includes the



Expert systems—a matter of urgency

by Philip Hunter SENIOR managers must learn fast about expert systems, or the UK will fall further behind its competitors. This is the message from the British Computer Society specialist group on expert systems, which recently spent a weekend preparing a campaign to promote swareness in companies and gov-

The BCS will express its ur-gency at a management tutorial on expert systems in September. "We won't be talking to them in our jargon, we will be talking to them in English," promises Alex d'A-gapeyeff, chairman of the BCS group.

There will also be a three-day technical conference at which sev-eral leading US expert systems people will speak. One of these is Edward Feigenbaum of Stanford

pert systems have a bad name in the UK and as a result are being neglected in our companies. "Artificial intelligence has a bad image in the UK, and people deride anything derived from it," says d'Agapeyeff.
The BCS is also concerned at the small number of skilled people in expert systems in the UK and

University, who recently spoke at SPL'a Fifth Generation conference

in London.

The BCS is concerned that ex-

urges government investment to reverse the brain drain that is tak-

ing away senior people capable of directing projects.

One speaker at a recent BCS meeting thought that this would not come easily "aince we are faced with an inflexible, innumerate with an inflexible, innumerate which government buresucracy which unfortunately thinks it knows what it is doing".

Reorganisation at Scicon

A MAJOR reorganisation has new larger grouping, Scicon Intertaken place at Scicon, Britain's largest computer services company. It reverses the separation of the bureau operation in Milton ters of its overall revenues. This Keynes from the London-based consultancy arm, which was a major feature of the group's last reorganisation in 1978. Now the major feature of the group's last reorganisation in 1978. Now the sequisition is 1978. Now the sequisition in 1978. Now the sequisition is 1978. Now the sequisities is 1978. Now the sequisities is 1978. Now the sequisit two activities will be run together

The changes reflect a greater commitment by Scioon's parent company, BP, to information technology.

Europe misses the boat on North American videotex standards

are similar but not identical.

In Hastings' view joint work could be done on a way of translating between the North American and European schemes and it would be possible to "harmonise" two of the character sets - the mosaic graphics set with accented characters. But it is too late to

bring about a re-write of the whole draft.
In Rosch's view, however, this is just a very preliminary draft. "I don't think the time has passed for action," he said last week. "If European manufacturers sit on their hands at this stage the result will be quite inevitable, but it doesn't have to be."

The X3121 errouse haif was

The X3L2.1 group's brief was to produce a draft videotex standard for North American use. It is to be considered this summer by the next committee up, X3L2, as just one of a number of coding achemes for different purposes.

In the autumn it will be consid-

by Donald Keazett

Whenever we have turned up at

EUROPEAN industry has been missing an important opportunity to influence North American stanto influence North American stanterrible five."

Canadian idea of "picture definition instructions", which are not used in the European standard, that it is different from the
terrible five."

Ruspean standard. The 40 members of the drafting

group included representatives of Honeywell, which has two separate Prestel-compatible private viewdata systems on the market in Burope, and IBM, which demonstrated its Prestel-compati-ble viewdata products at Videotex 82 in New York last month. According to Hastings, IBM is keen to deal with a single

worldwide sandard but its plea for harmonisation failed to carry the day on the drafting committee.

AT&T, which produced the document on which X31.2.1's work was based, is not committing itself-

to supporting the new draft.

SALES BRIEF Norweb network deal goes to ICI

MAJOR ICL user Norweb (North West Electricity Board) by bought five ICL ME29s on its strength of the distributed prossing capabilities of ICL's IPA (Information Processing Architecture) networking scheme and its growth plans for the ME29. A hill from IBM was also considered.

The systems will be a supported to the su

The systems will be used in standardone local processing in the area offices initially and networld for the exchange of goods and maintenance files in the sensit phase of a two-year project.

CAD for Vickers

CAMBRIDGE Interactive
Systems has won a £230,000 order
from Vickers' mechanical endoccurring projects division for a
computer-aided design system
based on its Medusa software. The system will run on a Prine 500 mini with four Tektroniched graphics workstations and a Bensoe plotter. Its purpose wilk to help produce a wider mag d designs during the tendering process and to ease draughting atministration procedures.

Case contract

ONE of data communication company Case's biggest order for message switches has come from British Telecom International. Worth £600,000, the order is for Case's MSX-T series systems b improve the handling of intentional telegrams and the ownight Telemessages which have replant

£2m orders

ADP's Onsite service, in which small mainframe is installed on the customer's premises but software and networking are provided to ADP, has attracted expansion of ers from BL Systems and Britis Telecom. Renewed orders but been placed by Allied Brewing and Bass and there is a new order from North-western Region Health Authority. Orders plant in recent months total over 12 m

Stock control

DATA Logic has won a contact of develop an order processing as a tock control system for lubrar supplier Burmah Castrol's UK manufacturing and distribution network. Each depot will have 128 Kbyte Data General (3) mini with a 12.5 Mbyte of it Mbyte Winchester disc drive all other peripherals.

£1m exports

PERRANTI has won two upon orders from undisclosed oranis for tactical display systes totalling over £1 million is wistonal or of them includes a the colour screen more than the colour screen more than the colour screen as well as a proper square squar metres square as wen as a less number of conventional display and Ferranti Argus 700 minos puters. This type of Ferranti Argus 700 minos display system is now used in its countries in North America. Burope, Add and the Middle Es.

Shops automated

MOTOR parts and accepted the chain Halfords has placed as off worth over £100,000 with JKM Microsystems for 300 likely M551 programmable portable minals and two data receives. It remains will be used to collect a ordering miormarket. shops.

140 mmis

AN order worth 22 million for Wang minicomputers his he placed by an pany. Wang minicomputers his he placed by an analysis and the placed by an analysis introduce a welcome something minroduce a welcome something ment discretely figures.

Michael Aldrich David Britton Joseph Engelberger Mrs Steve Shirley Chuck Peddle

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State of the Art REVIEW	82

, 1 :
•••

Legal threat to disc supplies is settled

THE legal case which threatened to hold up supplies of the largest capacity disc drive sn far an-nounced has been settled out of

Storage Technology and Ibis Systems have ended their legal acions against each other, and Ibis will now distribute its five-giga-byte system which was originally

staffed largely by STC employees, 13 of whom were named in the STC action alleged that Ibis had was also alleged that Ibis had was also alleged STC's trade

To its part STC has agreed to drop all legal actions against Ibis including the alleged patent infimited statement to

ng unfair competition by STC.

undisclosed cash payment to STC, and will oot hire STC or ex-STC employees unless they have been out of STC's employment for at least six mooths. Some of the 13 employees will not be allowed to work oo particular types of pro-

ringement, which threatened to hold up supplies of the Ibis 5000.

EYEIONS . . , "Lack of progress

excluded from the package for no

apparent reasoo. It was also in-

teresting that BT was considering

offering bulk discounts on interna-

onal leased lines to meet competi

tion from ahroad but was unwil-

ling to coocede the principle for inland links.

In more ways than one, human intelligence

and judgement are being built into software.

strategies, pattern recognition...we look at

nese three examples of "intelligent" programs

computer for businessmen), and the Sharp PC 1500 (a pocket micro for engineers and scientists).

PERSONAL COMPUTER MAGAZINE.

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· We review the Televideo 802 (a hard disc

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AUGUST ISSUE OUT NOW

Machine Intelligence

Last week the parties ao-oounced that they had reached a smaller than the 5000 system will be distributed in the UK by Fee, a Londoo-based software and lbis has undertaken to make an bert, Fee managing director, says Fee expects to handle \$9 million worth of Ibis products in the first

> different from the other contenders in large disc market. Most of the companies in the field have ollowed IBM's approach with its film heads and conventional ferrite coated discs. Ibis is using thin film

This approach has caused a lot



LEIBERT ... "Fee expects to handle \$9 million worth of I bis products in the

Phone bill increases held down by Dnnald Kennett BRITISH TELECOM has pro-

posed a package of price changes that it says will add an average of 3.3% to all telephooe bills after

In the autumn it plans to acnounce increases of up to 33% in-the cost of leased lines to take effect from next February. But these were previously expected to go up by 50%, a spokeswoman

Part of the need for adjustments is to match charges against costs, to meet competition from Mercury and other services. Profits from long-distance calls and subsidies on local ones are both being reduced and BT has long said that leased line charges were held un-realistically low by price freezes in

director-general Doug Eyeions said that leased line charges were s long-term problem that would have to be solved in the long term.

The call charge increase he said,

were relatively modest. "What is far more important is the lack of progress in liberalisation, which will bring price reductions through

Telecommunications Users' Association secretary Michael Corby said it was worrying that full de-

Viewdata in business project

SCHEME to promote the appli-

cation of viewdats in business is being lauoched by Langton Information Systems with backing from Sony, ICL, Prestel and the Department of Industry. Senior consultant John Mitchell

says Langton plans to approach up to 500 companies to fiod 30 which will be prepared to go ahead with auitable viewdata trials. They will be offered consultancy from Langtoo, unspecified support in cash and kind from the backers, and a co-ordinated exchange of exper-iences with each other through

called Pave, will speed the acceptance of viewdsta by making more managers realise that it can be an effective tool, especially in association with office automation.

"We see the scheme moving lot of equipment because the value of viewdata to business is not at all appreciated and yet it is there.' says Mitchell. "Top management demaods its information on a piece of paper because it cannot relate to a DP screen. But viewdata can screen. But viewdata can provide an interactive flavour to ioformation a manager deals with directly without involving any in-termediaries.

Euro-law to give equal pay to freelances

ployment as permanent staff as of right in 18 months time, if a draft directive just published is accepted by the European Council of Ministers. The proposed legislation will place a number of restrictions on the way freelance agencies operate.

The new Euro-law has been proposed following a substantial growth in temporary working throughout the EEC. Many of these temporary workers are paid substantially less than their permanent colleagues, have little protec-tion against dismissal, and are not entitled to benefits such as yearend bonuses and paid holidays.

user groups, seminars and reports.

Mitchell hopes that the scheme, The new legislation will require temporary workers to be paid as

Combining

GROVES . . . "Difficulties ahead."

mented in a written contract issued to each temporary worker for each

assignment.

The driving furce behind the law is the finding that many companies are using the high unemployment levels throughout Europe to employ successioos of temporary workers and so evade their obligations under employ-

ment protection legislation. These abuses dn not in general apply to freelance computer pro-fessionals, but they will nonethe-less be covered by the law.

For example, agencies will not be allowed to prevent a temporary worker taking up permanent em-ployment with a company at the end of his or her contract. Any such clause in a contract would be considered null and void.

The legislation is unlikely to save a big impact oo semporary working in the computer industry, but it may well cause some irritatninistrative problems. A typical reaction came from Vic Groves of VNG Professional Services, who said, "We're going to come up with some difficulties. The fundamental problem is that contracts are between companies, while the legislation is aimed at the individual, and it's difficult to

Paper will pile up in the office

by Nicholas Enticknap HOPES (or fears) that paper will rapidly disappear from offices are unfounded. New electronic comnunications systems will not begin to have an impact on paper use at least until the 1990s, and some of

them will have no effect before the next century.

This is the major finding of a market research study published by International Resource Development (IRD) of Connecticut. The study is called "Paper-based electronic mail", and costs \$1,285.

The study predicts a growth in messages sent via electronic communications systems and delivered on paper. IRD calculates the figure for 1982 at less than four billion, and predicts 2t billion for 1992.

Systems covered under this gen-

Systems covered under this general heading of 'paper-based electronic mail' include telex, teletex and facsimile.

The finding is in line with the results of other research. In a report published last year by BIS Marketing Research, for example, it was recorded that overall paper consumption in the UK was growing at a rate of two per cent a year. The use of paper in business alone is growing at twice that rate.

NEWS BRIEF

Profits 50% up at Altergo Software

IBM systems software house Attergo Software has reported profit up 50% oo turnover up 30% for the year ended March 1982, Org. seas activities are expected to be increasingly important in the present funancial year, and Altergobs strengthened its US subsidiary is Boston.

Two more European offices and due to be opened soon.

Services tie-up

TO cater for the specialized accounting market a new compay has grown from a tie between its Fraser Williams computer series group and the City of Lordon chartered accountants Hadrey Young. The new company of the chartered accountants that we want to the chartered accountants the chartered accountants that we want to the chartered accountants the chartered accountants that we want to the chartered accountants that we want to the chartered accountants the chartered accountants the chartered accountants the chartered accountants t Young. The new company called Hacker Young Fraser Williams Lid, will operate out of Frase Williams (London).

Higher fees

MEMBERSHIP fees for the land tute of Data Processing Management (IDPM) will go up on Ju uary 1, but the increases are bylar than the current inflation rate. The new fees, approved at last week's annual meeting are £26.50 for full member, £20 for an assoir member and £18 for both affilia

Tandy buoyant

PRELIMINARY sales figure from US microcomputer and or sumer electronics giant Tandy for the fiscal year ended June 1911 show a rise of 20% over the previous year. Total sales were record \$2,031 million compared to \$1,691 million for fiscal 1911. Sales in June were up 24% out June 1981, st \$174 million.

Canadian sell-off

NEW YORK-based Advance Computer Techniques has starte moves to sell off its Canadian ad sidiary ACT Computer Service Under an agreement with it Investment Review Agency, the company must try to divest its of at least 60% of the equity Canadian lovestors. The in sidiary has projected 1982 revent of \$8 million (Canadian).

More of Mimi

MIMI range of business micro, manufactured by British Alico, is now more widely available following the appointment of over it UK dealers spanning the community of the list of Wight.

Prize system

THRRE months after winning DEC Robin computer in a competition for schools, The Lyces Prancis a London has taken delivery of a prize. The £4,000 system cast prize. The £4,000 system cast prize the fifteen service continues.

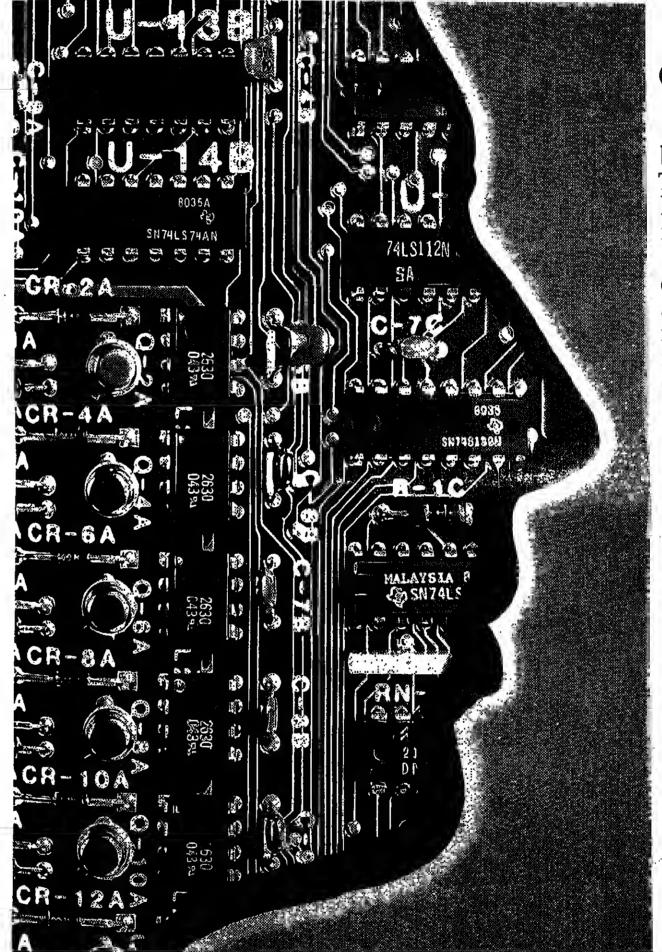
Diablo distributo

RAPID Terminals, of High Wy combe, has been appointed a distributor for Diable System Rapid will supply the full ranged daisywheel printers from Diable The Diable products fulfil Rapid requirements for a range of particular printers to complement to DEC dot matrix printers alman capried.

10,000th drive

US disc manufacturer Prism is delivered its 10,000th Windows disc drive. The alght-inch, 35er disc drive. The alght-inch, 35er disc drive. The alght-inch algorithm and the manufacturer high Microsystems. Prisms higher disc of 14 inch and eight-inch and are running at \$50 millions and it has just brought mis Mityte 514-inch unit.

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German govt bales out AEG Telefunken

West German government to grant the troubled giant AEG £140 million in loan garantees gives the company much needed breathing space, but its long-term survival depends on much wider issues.

The government granted AEG loan guarantees both on specific ments on sulciving the discontinuation.

The long-term survival plan deloan guarantees both on specific

loan guarantees both on specific export orders and for its manufacturing activities, contingent on the company'a bankers coming up with a further £64 million.

Although some of the 24 members of the banking consortium which owns 50% of AEG'a equity may be unwilling or unable to ex-tend any further help, it looks as though AEG will achieve the ecessary amount.

The two amounts together

of Univac's internotional division, said that the company estimated the cost of converting to water cooling for users would be between \$20,000 and \$40,000. This company to the control of the control of

pares with the cost of the computer

system itself of between \$2.8 mil-lion and \$9.6 million.

as dense as those of the previous top of the range 1100/80.

pends on splitting the diversified electronics and industrial group in two parts, and attracting financially strong partners to help beat the costs of turning the business round to profit once more.

One part would comprise the potentially viable capital goods, electronics and telecommunications sectors, in which the British General Electric Company has shown a considerable interest.

by Kevan Pearson Williams added that Univac SPERRY Univac does not antici- would not have liked to have been frame manufacturers would have

The introduction of water

cooling on the 1100/90 series was necessitated by the density of the

logic circuits, which are 10 times

ATTENTION

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GEC is reported to be willing to pay up to £180 million for s 40% stake in AEG Technik, ss the capi-tal goods section of the new company would be called. And Lord Weinstock, GEC's chief executive, has held several rounds of talks

with AEG and its workforce. However, the talks have so far ning. AEG's unions fear that GEC's involvement would result in heavy job losses, and have at-tempted to find another way of

securing the company's future.

The unions had managed to arrange talks with the Bonn government to discuss the possibility of the government taking a direct stake in ABG. However, the economics minister, Count Otto should ensure the company's The other part would be AEG's Lambsdorf, said there was no pos-

through the stack by large fans,



Water cooling no problem—Univac

'Lamentable progress' in public purchasing

o field Commons criticism of "la-

robotics programme grants over £2.6 million had been approved. He also announced last month a new £35 millioo Industry Act scheme to assist the introduction of flexible manufacturing systems.

This would supplement £25 miland Technology Act 1965 for a continuing programme of related

The maximum grant had been raised to one-third to stimulate companies to action this year.

Gwilym Roberts (Lah, Cannock), still insisted that despite the Dol efforts, progress was "lamentably slow". He asked Baker to remind his fellow Ministers in the government that major technological investments would take place calculated that are ment on many occasions.

Correspondent only when the purchasing power of the public sector and of the constitution of the constitut

to field Commons criticism of "lamentably slow progress" in the use of public purchasing to boost the introduction of automation systems in UK industry.

The Minister reported that under the Department of Industry's The Country of the Country of

small engineering firms inven-ment scheme had been a great success, he said. He was sure that the flexible manufacturing teheme would be equally successful.

A North-east MP, Derek Poster
(Lab, Bishop Auckland) said that
the flexibility of manufacturing
had been so great in his region that many companies had gone out of existence. He asked if the Ministr was aware that the new industrial and the magnificent revolution in entrepreneurship promised by the government had led to a net job

Cliff Dilloway on Employer's Guide to Statutory Sick Pay

The biggest change to payroll systems since 1975 is coming

SPERRY Univac does not anticipate any problems over the iotroduction of its fastest, most powerful computer aystem, despite its use of water cooling, which caused ructions for IBM users when that company introduced it on its largest processors in the early 1970s.

Charles Williams, vice-president of Univac's internotional division, said that the company estimated site for the introduction of a high-race of the company estimated of the company to introduce to swhich to water cooling so they in the ducted more powerful machines.

The 1100/94, a tightly coupled four processor system, delivers about 25 millions instructions per second — roughly equal to Fujitation of this expension of the company estimated of the co THE Employer's Guide to Statutory Sick Pay is now being distributed. It is well written and needs

days long to count as such.

More than one auch PlW with fewer than fourteen calendar days It seems likely that this is as far as air cooling can go. Gene Am-dahl has gone over to fluid cooling to be studied by all those who have responsibility for modifying PIW for walting day and average

for the next generation of machines be is designing for his new company, Trilogy. Statutory sick pay calculations are still required for employees who are nevertheless paid in full when off sick. The precise amount of statutory sick pay can be re-covered against national insurance contribution payments, and proof has to be available to show that at Software

employees.

There are three aspects to statutory sick pay: the administrative, to determine whether the employee is entitled to sick psy; the sick pay calculations, to work out how much the employee is entitled to for the number of days he has been sick; and the record-keeping, to provide the information needed the next time the employee is off

the next time the employee is off slck and to report at the year end. There is little help that the computer can give with the administra-tive arrangementa of determining tive arrangementa of determining whether an employee is entitled to statutory sick pay. Judgments as to whether an employee's notification of sickness absence was late without good cause cannot be made by the computer, any more than the system could decide whether the evidence of sickness was adequate.

Clerical procedures will deter-

Cierical procedures will deter-mine the days or dates on which an employee was not able to work, and the days and dates on which he should have worked and didn't. The two are oot the same, and studying our definitions will show that he first is a "period of incapac-ity for work" (PIW) and the

ity for work" (PIW) and the second, "qualifying days".

From the days and dates of the PIW and qualifying days the computer can take over. The calculations are complicated enough for us to wonder how we would have coped without it. There are three weekly rates of statutory sick pay, and which one is applicable depends on a moving average of earnings over the last eight weeks.

The daily rate of statutory sick pay is the weekly rate divided by

Prior I. Statutory sick pay calculation formula.

Period of incapacity for work (PIW):

At least four consecutive employee is oot fit enough on thave to be working.

Linking:

PIWs separated by 14 and count as one.

The ritags on which at the pay is the weekly rate divided by

pay is the weekly rate divided by the number of qualifying days in a week. From the definition you will see that the number of qualifying days in a week can vary from employee to employee - but note that they always occur as whole days for statutory sick pay pur-Waiting days:

poses.

Statutory sick pay is paid for all qualifying days in a PIW after the first three, which are waiting days.

The PIW has to be at least four Figure 2. The terminology.

between them are treated as one carning assessment purposes. The atatutory sick pay payment should be identified on the pay slip. The psyment is not additional

to any other payments the em-ployee may be receiving, but is a num payment, Showing that the minimum entitlement has been paid is essential to avoid queries. Whether as a specific payment or part of a large statutory sick pay is recoverable

The method of recovery is to deduct the amount from national inaurance contribution payments before they are made to the Collector of Taxes. For this reason, statutory skk pay bas to be re-ported in total employee by employee oo the P35 at tax year cnd and brought into account in

and brought into account in recording the total taxes due. The computer system can keep a watch for two actions, necessary when an employee approaches the limit of his auatutory alck pay en-titlement in a year. After eight weeks measured out in weekly fractional qualifying days an em-ployee becomes entitled to the

sickness benefit we have always known, paid by the DHSS, Dur ing the seventh week of statutor sickness a transfer form has to b completed and given to the en-ployee so that he may claim sid-ness benefit. The computer on keep track of employees as the approach the limits and mager the necessary setions.

Most employers will wish to keep records of employers ixtness absence in excess of the requirements of the DHSS, if the have the welfare of their employers have the welfare of their employers. at heart. The legal minimum of records is the dates of sickness at sence with a note of why statutory sick pay was not paid on any of those days. The details of qualifying days in each PIW also have to

Employers have to maintain satisfactory control mechanin over sickness sheare and if the scek DHSS assistance in investigating the health of employed with a number of self-cettified sicknesses in a year, then rabe more information will be required.

Computers can usefully perform important function and the computering function and the computering function and the computering function and the computer in the computer pansion of personnel systems in that direction is to be expected.

This is the biggest change is payroll systems since 1975. May il your system sitersticos flor

Statutory Sick Pay— Weekly rate of SSP XDays SSP due

Qualifying days in week

Statutory Sick Pay liability in a tax year ceases with the day what the sum below exceeds eight (8). Sum for all

SSP payments Qualifying days in week

At least four consecutive days during which a employee is oot fit enough to work. The day do not have to be working days. PIWs separated by 14 days or less are lini

The days on which an employee would have worked had he not been sick. By agreement almost any arrangement can be made as 10 shall almost any arrangement can be made as 10 shall constitutes qualifying days, but if no work is constitutes qualifying days, but if no work is scheduled and there is no other agreement, scheduled and there is no other agreement. Wednesday must be taken to be a qualifying

The first three qualitying days in a Linked PIWs count as one PIW when com waiting days.



SELL . . . There never can be a universal language

claimed the complainants, hy stat-ing the performance of Cincom's

Advertising Authority

backs Cincom critics

by Philip Huntee
LARGE UK software house Cincom Systems has run into trouble with the Advertising Standards Authority (ASA) for making a misleading comparison between its of 45%.

Two members of the public complained about the phrase: "CPU Utilisation 181% better", which was featured in an advertisement that ran for three months in a says UK Cincom La points. The mister of the mister of the figures were misleading, when the figures were misleading, which was featured in an advertisement that ran for three months in a says UK Cincom general manager.

UK weekly computer publication. Terry Booth. He points out,

The figures were supposed to compare the apeed of Cincom's own database management system and the one svailable from IBM.

They exaggerated the difference, claimed the complainants by stat-

system as a percentage of IBM's.

A fairer comparison would be achieved, they said, by stating the competition.

the affair since it was not directly implicated. A spokesman said that IBM never indulged in compari-

Fifth generation effort is hampered by language controversy

BRITISH researchers are strongly divided over the choice of language o spearhead UK research on the range of views expressed at the SPL London conference on the fifth generation proved how far Britain is from a united push to develop tools for the 1990s.

Japan has standardised on one language, Prolog, whereas the UK bas settled for three languages including Prolog and Lisp. That makes the Japanese three times stronger," said Prolog expert Boh Kowalski of the Imperial College of Science and Technology.

Kowalski reported that the University of Tokyo bad already imperial contents.

versity of Tokyo had already imessors using the artificial intelligence technique of parallelism. This mimics the way the human brain simultaneously processes masses of information as with vision), rather than one piece at a time.
"If this had been done in the

West there would be a lot of papers published," said Kowalski. "But there are no references in the Japa-nese JIPDEC publications, and

Viewdata to

database

converter

SOFTWARE which will enable

viewdata users to liok up directly

with any computer database has been developed by SDL of Surrey. At present viewdata terminals can only be linked to special viewdatabases, although such systems as Preview, available for

e last three years from Langton

But each viewdata standard bas

10 be separately catered for in Preview. Therefore Langton had

converter to handle Prestel and the Canadian Telidon standard, for

example.

SDL's software is wrapped up

to develop a different pro

Information Systems, will convert any computer file into a viewdata

there is a reluctance to share in-formation. We are ony just starting to meet the Japanese at confer-tors.

Peter Sell of SPL International's UK research centre, disagreed that the Japanese had a great advantage in choosing Prolog above other languages. "Frankly, 1'm as-tounded at the argument about different languages. There is not, and never can be, a universal language, and I would argue about the value

of being restricted to one language.
"Like all tools, some are good for particular jobs. It's just as stupid to talk about banning hammers and nails in favour of screwdriv-

One of the arguments put forward by Sell was that people are bound to disagree on the value-based judgments that will inevitably be "written in" to languages which are used to converse "Users tend to be more capable

hy Philip Hunter THE world's largest software con-

ways on the look-out for interna

tional conferences.

The next of these internations

September. The application of

computer languages are too low-level for people and too high for machines, which is why pro-grammers earn so much."

Major conference to

come to London

Larry Harris of Artificial Intelligence Corp in the US stressed the

mportance of giving people tools that they are happy with as part of making them want to use computers. Harris sells the Intellect language, an English-like tool based on his earlier research with the high-level Robot language, and is deeply concerned in making artifi-

Sell envisaged that current com-

is TP Easyhuild, an addition to Data Dictionary System, which allows users to huild their own

teleprocessing service in response to questions from DDS. ICL is also launching a series of Applica-tions Blueprints used in conjunc-tion with DDS to cut application development time by up to 90%. Protocol handling

"People don't spend \$69,500 on something if they don't feel that they are going to get value out of it", he said. "It is amazing how the tension and frustration people feel about using computers dissolves wheo they sit at a terminal and use

"They experience enormous elation at feeling comfortable and in control. The top-level people, parhappy once they recognise that they are working with data they've known for years. The trick is to convince them that it's no hig deal

HONEYWELL UK has announced protocol handling soft-ware for DPS 6 and Level 6

SOFTWARE

ICL launches

ICL has developed a set of soft ware tools to aid programmer productivity. The first announcement

productivity

tools

minicomputers to operate within an IBM System Network Architec-Financial modeller

COMSHARE has announced a

CP/M-hased financial modelling package called Plannercalc selling for £39. A more sophisticated system called Masterplanner adds eatures for consolidation and interface with word processing

Protects software TABS has developed a software

protection mechanism which operates through the serial RS232

Dealers sought

BUG Byte, a Liverpool-hased con-sumer software supplier which claims to have sold more than 500,000 cassette games since the ment its existing 90 dealers nationillemational committee that orgawide. "Our target is 500 within the nises the software engineering con-ferences is Manny Lehman of London's Imperial College. next 12 months," said director Tony Baden. Contact 051-227 2642.

gineering Conference has accepted an invitation made by the London Convention Bureau. LCB offered 14 possible venues, including wellcnown conference centres such as Wembley, and other sites such as **DEC PRINTERS** The LCB is an agency of thesoftware conferences, which are held every 18 months and last three days, is scheduled for Tokyo software techniques to the as yet mythical fifth generation compu-

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MICRO NEWS

Report tips micros to move in on non-stop systems market

igh integrity system market. All the newcomers use designs huilt

The benefits of moving to microprocessor-based designs are discounted by Tandem, according to a report on fault tolerant systems from California tecbnology watcher Itom Interns-tional*. But Itom feels there are significant advantages in using the new breed of I6/32-hit micropro-

classical trauma of a mini maker trying to break out of the 16-bit mould, s process most leading mini suppliers went through about 10 years ago," says Itom president Omri Serlin. He sees the internal 32-bit architecture of the 08000,

approach, says Serlin.
Stratus featured recently in a legal action brought by Tandem to stop Stratua publishing allegedly misleading product comparisons and using the term NonStop, s

addressing to 32-off. The architec-ture may be old and proven, but the implementation is an evolutio-nary concept."

Some of the microprocessor-

Tandem is using 68000a, hut only in peripheral controllers and not in the CPUs. The CPU logic accounts for about 4% of the cost of a typical Tandem system, and is, claims Serlin, shackled to its 1974 vintage architecture by the huge investment in proprietary

The report suggests that some Tandem customers are already chafing against the limits of that ure, an idea rehuffed by Tandem's UK managing director John Louth. "In a recent survey in Datamation Tandem was rated highes, for costomer satisfaction.
There were zero complaints."

THE minicomputer-dominated using, as a significant advantage. He also sees the srgument world of fault-tolerant computer

There are price considerations against the old — "well tried" he too, according to the report. A deprefers — 16-hit architecture as s processing systems is facing a micro challenge. Established market leader Tandem, with its NonStop systems, is being challenged by a growing list of competitors who are after the valuable light formula in the competitor of the report. A despite a sign from Stratus Computer — a red herring. "We changed processor as about 18 months ago and are taking advantage of hardware improvements like 64K RAM chips. The software has not changed at approach, says Serlin. all, despite a move from 16-hit addressing to 32-bit. The architec-

Some of the microprocessorbased hardware coming on to the scene will use the Unix operating system — supported on the 68000

modifying the internals to run on the fault-tolerant hardware while leaving the user interfaces

liar with Unix - which is fast he-coming a standard operating system for high performance 16-bit microcomputers — and would permit the use of third party appli-

Itom's study suggests that this approach would allow new entrants to the arena to bypass the

is counting on.
Intel's iAPX432 chip set is well auited to fault tolcrant systems becsuse of its functional redundancy checking feature which would ease self-checking designs. Growth of auch systems is also helped by the 432's self-despatching multipro-cessor capability, and its object oriented architecture is well stated to developing fault-tolerant soft-

But widespread use of the Intel device will not happen until the price of the chip set comes down substantially, says Serlin. He also reckons that software support and family range must improve drama-tically, and that the product line needs to be seen to be more determinedly supported by Intel.

Things are moving on that front though, and Intel has announced its intention to integrate the instruction decode unit and microexecution unit chips on to one.

The market for fault-tolerant hillion by 1986, the report says.



Apple picks Zynar for new office



operations. Kit for a 20-station network has been delivered by Zy-nar — leading contender in the Apple network stakes, and the net-

THE UK arm of Apple Computer, settling into its new nest in Hemel Hempatead, is installing a local network to streamline its office for both Zynar and Apple. "It developed the Cluster I network system, sees the deal as important for both Zynar and Apple. "It gives Apple a significant tool for Apple to use themselves," says marketing manager Roy Shendan, "and we are pleased with it."

> Apple's marketing manager Stephen Brewer is enthusiastic about the idea. He reckons it will speed things up considerably

Technology exchange

agreement is to ensure direct compatibility of devices already mu-tually second sourced or under de-information to maintain compati-

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How to make the most of

your computer, your time

and your talent

A FIVE year cross-licensing and technology exchange agreement has been signed by Intel and NEC ler and 7220 graphics diaplay dealing with a single chip microcomputer and various peripheral controllers. The aim of the agreement is to account of the server and th As part of the agreement, Intel

velopment by the two companies, so that the parts are interchangeable in customer designs.

bility on two other peripheral chips, the 8253 programmable counter timer and 8259A programable in customer designs.

The devices concerned are Intel's 8022 microcontroller and Intel spokesman.

counter timer and 8259A programmable interrupt controller said an Intel spokesman.

devices division.
Rockwell is also likely to second
source Seeq's 16K EEPROM and
its 64K UV erasable PROM, production deliveries of which are scheduled by Seeg for the suluma Rockwell plans to offer sample carly next year, moving to full scale production in the second half.

Rockwell in

Seeq licence

agreement

PROCESS technology and product design information from Seq Technology, active in the electrically erasable PROM field, is to be

icensed to Rockwell's electronic

half.
The agreement slso include
Rockwell's right to use Seed's nonvolatile memory circuit design and
process technology, with continuing assistance from Seed, says
Rockwell electronic devices dission president Al Lapierre.

Sperry deal

US computer company Spery its be supplied with 64K dynamic RAMS by Japanese manufacture Mitsubishi Electric. A long-trassupply contract is due to be appropriately designed to be appropriately designed to be appropriately and the contract of the supplied of the contract of the supplied of the contract cuncluded this month for quantics thought to be around 30,00 units a month.
This is the first deal under

collaborative arrangement as yearly in June by the two coppanics. Mitsubishi will also de velop and manufacture custo LSI circuits to Speriy's specific

To meet this quantity orde, Mitsubishi is to raise in manife output of 64K dRAMs to one as lion units by September.

Q-bus array

AN ARRAY processor to AN ARRAY processor DEC's Q-bus has been introduced by the second puters. SKYMNKQ micro number kruncher fest floating point processing technical and scientific intercont puter users in applications like to dar, speech recognition and about ics.

ics. The unit, on two posts paid into an LSI-11/2 or 1/12 can bus backplane and operates unit RT-11, RSX-11 or 15X-photos in the company of t RT-II, RSX/II or TX/
claimed to speed up operations is claimed to speed up operations is vector srithmetic of \$50 me 100 transforms by between \$50 me 100 transforms

Intereurope supplies technical documentation to many leading

Documentation firm

goes public on USM

Shares in Intercurope Technical computer companies including ICL, GEC, Ferranti, and Racal as well as the Ministry of Defence, Services will be up for grahs on the Unlisted Securities Market (USM) founded for companies too small to be sole to afford a full Stock Ex- .for which it is also an approved supplier of software.
The company diversified into software and communications last change quotation, which can cost

According to chairman David Immanuel, whose family owns most of the company, the decision to go for a quote now was triggered by a need to offer senior managers hares. About £4.8 million worth of shares is expected to be sold.

raise money for acquisitions.

COMPANY NEWS

year, a move which accelerated the rste of growth with profits rising from £274,000 in 1978 to £650,000 in the year ending June 1982. So far ten computer companies

enloy quotations on the USM, in-cluding Scandata, Zygal and Tri-Immanuel says that Intereurope cluding Scandata, Zygal and Tridid not go for a full quote now partly because that would cost precedes a move onto the full

by Philip Hunter
ONE of Europe's leading suppliers of technical documentation is more, and partly because the company does not at the moment wish to release the full 25% of its share

Stock Exchange, which Intercupant to do.
Intercurope produces documentation

tation by sending its people over to liaise with the technical staff of the company concerned, and return with the raw information to a team will atay on site for some time if constant exchange of information with the development programmers and analysts is re-

the experience gained of software from its documentation activities to move into communications systems. It now has a fast growing team of analysts at its Wokingham office working on several pro



(left to right) Intereurope's David Immanuel, chairman; Edward Vallance, joint managing director; and Antony

Funding conference success

Barclays bank three weeks ago has ed to three financing deals and the worked out at a real interest.

Details of the financings will be formally released in the next few weeks, and at least one is expected to benefit from the Business Start Loan Scheme which Barclays for-mally relaunched last week.

This scheme, which has been used extensively by Barelays in its capital repayable boliday lasting for three or five years. leading to the computer industry, was temporarily suspended be-This means that one of the toug-hest problems faced by small comcause of a tax change introduced in puter companies, recurrent regular

monthly payments in the face of The change prevented Barclays treating the charge it made for the erratic sales revenues, is elimi-loso as franked income and nated, therefore offsettable against the bank's own tax llabilities.

The royalty payments do not start until the company has reached a certain level of sales, and Formerly Barclays was able to

While not exactly an equity

package, equity being straight investment in the company, the package comes very close to being just that. It also means that many of about 12%, very much lower than current rates. The tax characters that the bank must treat the royalty as interest, and accordingly the royalty charge will now reflect an interest rate of about 17%. small UK computer companies have access to neo-American type funding in their own high street. However, the loan is attractive, This could lead to a substantial change in the pattern of UK comparticularly to software houses just starting up. First of all, there is a

puter company startups, according to some observers. With so much more startup funding available many more software and other likely to occur. This in turn should lead to the

kind of employment creation which has been seen in Silicon Valley, where more than 600,000 jobs in the computer industry have ari-

Japan trails Pioneer strikes gold in electronics in California government will lend a company half of the first year's costs of setmarket

A UK software house has struck it rich in California with a large accounting and production control package based on Digital Equipment hardware.

Pioneer Computer Systems of Northampton has installed its Command system on a DEC PDP-11 in California, and has set up its first dealer there.

Pioneer bopes to have 40 dealers world-wide and 15 in the US by the end of the year. Director Tom of the European electronics com-McKsskill expects to make a million dollars in the US in the year from October 1982. Pioneer will benefit from a De-

Although a European company, Philips, has the single biggest com-pany share at 11%, the Americana dominate with more than 31.5% of partment of Industry market entry scheme during its first year of US operation. Under this scheme, the

abroad. These costs are then re paid out of royalties gained. McKaskill says that this mone was not vital to Pioneer, but will

make the whole operation in the US proceed much more quickly. The Command package is a big one, costing \$40,000 in the US, and just under £20,000 in the UK.

It is a menu-driven modular system based on database manage-ment software with ten optional modules including the usual range ledgers, requirements planning It was built with User II, o data

dictionary, program and repor

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Cable & Wireless set to back Mercury in attack on BT monopoly

RECORD profits at Cable and Wireless, the half government

poly.

The company is now in a strong position to put up its share of the initial £50 million capital investment programme in Mercury, a project to build an independent business communications network in the permission with BT, scheduled to become operational early next to become operational early next year in London.

Mercury is 40% owned by Cable and Wireless. The other partners are Barclays Merchant Bank and British Petroleum. If demand for the new service takes off, the Mercury consortium plans to spend £1,000 million over the next 15 years in an ambitious network carrying domestic traffic and using

Pre-tax profits of £97.7 million land.

ALLEGATIONS made by Mex. d'Agapeyeff at the recent Fifth Generation Conference that the Ja-

panese electronic companies have a dominant market share in Europe are flatly contradicted by a survey from consultancy Mackintosh In-

The survey, published by Ben Electronic Publications of Luton,

shows the Japanese with just 3.7%

worth \$100,000 million.

Group turnover was £354.6 million, up from £293 million the previous year, and earnings per share rose 5.25 pence to 20.2

Indications that the impending battle between British Telecom

and Meecury is about to begin came last week with the announce-ment that British Leyland boss Sir Michael Edwardes would become

Michael Edwardes would become executive chairman of Mercury. Edwardes's strong-man image is bound to boost Mercury's stature as a worthy adversary to British Telecom. Opposition to Mercury by the Post Office Engineering Union no doubt prompted his appointment, following his successful hard-line stance against the trade unions at British Lev-

Bigger than rest of world

IBM still holds the leading place in the world computer marketplace, according to the Computer Yestbook recently published by the Japan Information Processing Development Centre in Tokyo.

The yestbook for 1982 is quoting figures for 1980, but the relative shares are not thought to have changed since then.

changed since then.
IBM has 42% of the instant

base in general purpose computer systems, which now number 164,890. The company also has a 56% share by value of general pur-

The next largest market share by numbers, at 12%, consists of the entire contribution of the Eastern bloc, including Russis. This makes the Soviet Union and its satellites the jam in the sandwich between American companies. Honeywell made 10% of the world user base, followed by Burroughs with 5,2%, Univac with 4,2% and then a same har led by ICL; for which anares are not quoted.

Japanese companies, led by Fu-jim with 4% of the world-wide user base, made a total 7% world

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Freezing fog in July— thanks to a computer

WHEN your car breaks down, the failure is usually linked to the exconditions can be simulated.

motor industry, where any driving the number of results can run into conditions can be simulated. too hot (unusual in this country, I your poor old jam jar.

your dreams to them before you hand over the readies, failures in the field, or even on the road, could be minimised.

the most unpleasant conditions imaginable while luxuriating in air-conditioned comfort them-

BL's independent research company, BL Technology, has invested £16 million in new research and development facilities, which were opened last month; at Gaydon, Warwickshire. The installation includes the only climatic wind tunnel in the UK

The world.

Cars and light commercial to gather statistics and sounds an alarm should any personnel actually working on the vehicle under test be at risk. A black box "flight recorder" is provided within the system, for quick analysis of the reasons for a number of parameters recorded,

This wind tunnel accounted for If only the manufacturers could simulate these climatic extremes and subject samples of the car of your dreams to them before you spects of the tunnel's operation.

accurately create temperatures some time to be resolved without well now, thanks to the good old computer, operators can subject hapless motor vehicles to well-and the following thanks to the good old computer, operators can subject hapless motor vehicles to well-and sunlamps, heated floors, and variable fan shutters, all under compu-ter control, can accurately simulate virtually any weather condition in the world.

half of the total cost of the new installation, and wind speed and humidity and temperature can all be controlled, accurately, and reat any time. This database is comprehensive, and will allow prob-lems which come to light after the The climatic wind tunnel can vehicle has been in service for

> further testing on another sample. displayed on a colour graphics terminal which gives the operators all the information they require on the tunnel's functions at a glance. In addition, the computer moni-tors various levels within the tun-



How to ice-up a Jaguar in June - the BL cold chamber.

One of the principal require-ments of the tunnel was that it should be user-friendly, in that the operators should not need any programming experience to use It effectively. All functions are

additional software. The DAS runs on a DEC PDP-

11/44 under RSX-11M using discs with tapes for archiving. The data itself is channelled through a DEC industrial I/O subsystem with 192 analogue channels, 112 of which are thermocouple channels, six counter channels plus a 16-bit digital data highway for both input

The tunnel itself is controlled via two microprocessors under the control of the PDP-11/44, and the tunnel uperator is kept informed of tunnel conditions by a Hewlett-Packard 2648. In addition to the graphics terminals, there is a Versatec printer/plutter pruviding hard copy of the pictures on the

All the applications software has been written in Fortran IV Plus by BL Systems, and involved five man-years of effort from design tu

commissioning.

But the climatic wind tunnel is unly one of the facilities at the Gay-Gaydon also boasts a road had data vehicle workshop, experimental stress labs, corrosion test kall dun centre. A separate cold chamber can provide temperatures as low as -40 degrees Celsius. Both the climatic tunnel and the

facilities than I have space on his page to recount, all of which should provide a major contribution. cold chamber are equipped with chassis dynamometera, allowing the cars on test to be run at any- tion to road safety.

thing up to full power inside to tunnels. The cold chamber as also provide a most unplease freezing fug which tests cold for performance to the utmost.

ture, voltage and current me surements during a cold dries

An engine test facility allow to

gines to be "mapped", api

through computer control, is one man-year of testing can ke

duced to 250 hours. Noise at

vibration of complete cars is not sured in the semi-anechoic charber (semi-anechoic because & floor is not sound absorbest).

tics, and a laser holography libla whole-engine stress analysis. Nor

To enable the cars under test be stored at the requisite temper ture, the back of the cold chank opens out, allowing two obvehicles to be pre-soaked be actually being subjected to testing Up to 38 channels can be me tored in the cold chamber typically starter motor cures during cold starts and temper-

This multiplies the first n integers together. Sweet and succinct is

This will elicit a list of John's verifying programs written in Functional languages are, as the name indicates, chock-full of func-tions. The code looks like a

shorthand form of the algorithmic languages such as Fortran or Algol. One of the most advanced functional languages is Kent Re-cursive (KRC), developed under Turner at Kent University (hence Turner's enthusiasm for functional languages at the conference).
A typical KRC statement is:

FACN = PRODUCT(1..N).

THE logic language Prolog caused controversy at the recent Fifth Generation computer conference in London. The argument was whether logic languages such as Prolog, or functional languages such as Lisp will form the basis of such as Lisp will form the basis of the fifth generation.

It not? But I can tell you that KRC by Kowalski at Imperial College, programs are sometimes very difficult to read, although short.

The functional language Lisp has already had a machine dedistract concept of recursiveness when expressed in Prolog.

This mechine language by Kowalski at Imperial College, where he found that school-children picked up the language surprisingly well, and in particular found little difficulty with the abstract concept of recursiveness. the fifth generation.

The Japanese have already cholar Prolog for their fifth generation of Prolog for their fifth generation project. But this is short-sighted ampidity, according to David Turner of Kent University, who argued the case for functional language Prolog is still very much a prototype in the UK and generation symbol-ics. This machine has stready bean used to develop applications in a stready bean used to develop applications in the symbol manipulation facilities of Prolog made it ideal for the Co-bol program generators developed there, as for writing compilers.

One of Prolog's biggest drawbacks, according to Szeredi, much a prototype in the UK and generators developed there, as for writing compilers.

One of Prolog's biggest drawbacks, according to Szeredi, its lack of functions and algorithmic develops and algorithmic develops and the UK and generators developed there, as for writing compilers.

guages at the conference.

Logic languages, he claimed, are useless at handling deeply neated loops which are fundamental to November 1981, but the language has yet to make much commercial

For the uninitiated, Prolog impact. looks like a query language for a in Hungary, however, Prolog deta-base organised in sets and has been used for a surprising reistionships between objects. A typical Prolog statement is:

Which (x John likes x)

Which (s John likes x)

Which (s John likes x)

Which (s John likes x)

These and many other applica-tions were described by Peter Sze-redi of the Hungarian Institute for Co-ordination of Computer Tech-niques, at the Fifth Generation Conference.

One of the reasons for the ple thora of Prolog programs in Hung-ary, said Szeredi, is that most of the people involved had little con-ventional programming experience. This made the language easy to learn, because there were no punged,
A similar observation was made

Logical vs functional fans argue it out at conference

stract concept of recursiveness when expressed in Prolog. The Hungarians also found that

drawbacks, according to Szeredi, is its lack of functions and algorithmic facilities for manipulating arithmetic expressions and solving equations such as Fortran has.

As a result there was at times a need for a link with Fortran programs, which the Hungarians achieved by use of temporary files accessed by the Prolog program and Fortran routines in turn. Szetedi pointed out that one site developed an experimental interpreter that enables Fortrao subroutioes to be called directly from Prolog programs,

the Hungarians is Prolog's slowness, a result of the present inefficiency of Prolog compilers and interpreters. Various tuning and performance tools were developed, but like the calls to Fortran subroutines, these are just botched solutions, said Szeredi. An increase in the scope of the Prolog language itself, and further developments in compiling lan-guages — which are very high-level — will, Szeredi feels, cement

Prolog has been implemented on the hardware of seven manufacturers in Hungary, including 1BM, ICL, Siemens, Honeywell and Digital Equipment. The latest version, now implemented on the DEC VAX in Hungary and elsewhere, is called MProlog, and is still under development. atill under development.

Prolog as a base for concrete appli-

cations in Hungary.

MProlog was first implemente on a Siemens mainframe, but has



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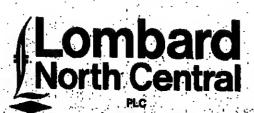
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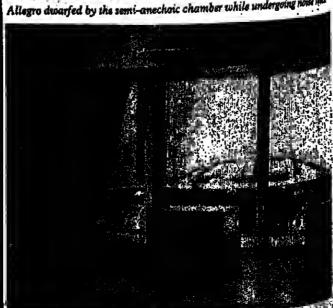
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Rover gets the heat treatment in the climatic wind turned

Codasyl accepts UK's VALIDATE proposals

program by providing facilities in the Data Division, in which the the Procedure division.

the Procedure division.

Without the VALIDATE verb, all data checking has to be performed by specific code in the procedure division.

VALIDATE proposals will now lowed by the name of the data item be written into the Codasyl Journal to be checked. of Development, which is taken as gospel by many Cobol compiler writers. Meanwhile Ansi, which lays down the most widely considering its new proposals, and considering its new proposals, and A more sophisticated check is expected to announce a new allowed is the specification of the standard some time this year.

standard some time this year.

VALIDATE is unlikely to appear in the new Ansi standard, however. According to Anthony Sale, whn is the representative of the British Computer Society on Codasyl, Ansi will only embody the new verbifit completely withdraws the proposals under crasideration and reconstitutes them.

"This is just possible, but unlikely," he says.

The Codasyl Journal of Development is usually about four years shead of the Ansi standard, and Sale expects VALIDATB to be incorporated into the next Ansi standard.

But impatient users can draw

But impatient users can draw consolating from the fact that they will not have to wait for Anal's rubber at amp before getting hands on VALIDATE experience. "People writing compilers base their ideas on the Johrnal of Development," Sale assures them.

In fact VALIDATE is already available as a preprocessor from a company called S+PC, whose managing director John Piggott

See page 47 for solution.

AT last UK proposals for a VALIDATE verb in Cobol have been accepted by Codasyl, the US-based arbiter on commercial computer languages. The verb will eliminate tedious coding to check data in the main body of a Cobol program by providing facilities in the computer by providing facilities in the main body of a Cobol program by providing facilities in the computer by pringing the validation pack from the Data Division into the main program body, known a

Codesyl first considered proposals for VALIDATE in 1975, but rejected them. Last year it went so far as to approve the idea in principle, but it was only last May that the full complex proposals were accepted almost unanimously.

The result is that the VALIDATE proposals will now all data checking has to be performed by specific code in the Procedure Division. VALIDATE allows this to be done in the Data Division, which contains all the other data specifications such as type and length. All the coder has to do then is write VALIDATE into the Procedure Division, followed by the name of the data item

VALIDATE offers a number of checking facilities, including the specification of numerical ranges, and the ability to list admissible numerical and alphabetic values.



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A small amount of effort on file design can pay a handsome dividend

THE heart of sny data processing \$\infty\$ 66% used indexed-sequential system is its permanent informafiles. tion. We have only to consider the 40% used databases. effect on a husiness of the loss of • 7% used VSAM clusters. its stock, order or customer files to 2% used partitioned data sets. realise how vital they are to the success of the concern. Scientific computer users, for whom the machine is often only a number-cruminer, are in a different position; their programs contain the coding to handle what are essentially one-off calculations on data, and permanent files may play little

or no part in their work.

For those of us dealing with commercial, administrative or reference work, however, the ability to refer to permanent data files conventional file organisations are quickly and efficiently is one of the still used to handle very large major considerations in systems

design.

Despite the importance of dsta amount of effort put into file defiles you will find very little sign can pay a handsome dividend.

All the records in sequential tite rather. Many books pay lip-ser-vace to the various types of file, without giving much more than a brief description of sequential, indexed, nun-sequential and direct files, and then moving on to linked lists, inverted files or databases. It seems that ordinary bread-andhutter file organisations either bore the authors of text-hooks, or are unimportant to them.

The neglect of file design is highlighted by the results of a survey carried out hy Rekka Patel, a the relsuon is not linear. Sam final year student on the BSc course in Business Computing Systems at the City University. Her survey, covering over 100 computer users, found that:

77% used sequential files.
39% used direct files.

HUMAN TOUCH DOWNTIME DOWNTIME

Keeping the system simple

base" is a word that does not have a plural. A single database should contain all your information. If different records are organised separately then they are held in files. I would not be too insistent that a rule such as Humpty Duinpty's dictum "It means what I want it to mean" applies. However, important though It is that all the records in a direct Cliff Dilloway is an independent access file are of the same length with keys of the same length, it is hy no means essential that the records have the same formet.

The temptation is that as agon as a file contains records of more than one format then it is called a database. My plea for database not to be used in the plural is just to keep some regularity to the meaning of the word.

Having dealt inconclusively with the semantics, let's consider the case of multiple format record files. In general I would oppose the setting up of a new file if an existing file can be pressed into service. Take for instance a purchase ledger system with provision for payment hy Bank Giro Credit.

There will be a file of suppliers names and addresses and probably a file of bank and hranch titles. It is unwise to put the bank and Having dealt inconclusively

10 YEARS AGO I

Sequential files are more widely available despite the recent em-phasis on disc storage, no doubt because tapes are very effective for high hit-rate sequential files.

Although many users intend to switch to databases in the future, it is clear from the survey that the

records that are as large as possible. If main storage space is a limitstion, it is not enough to guess which file should be given the

that have to he traversed can be reduced to a minimum hy giving the largest files the most space, but Waters first described the relationship (Blucking Sequentially Processed Magnetic Files, Computer Journal, Vol 14 No. 2), and I have explained how to estimate the best blocking factors in any given practical case in a recent

In the same format as the

suppliers' names and addresses.

You need to be sure that there will

codes and supplier account

some local convention should help

set of instructions to follow and

There are benefits in all direc-

to overcome this.

From Computer Weekly of July 20 1972

That is never the correct position. Often it is the centre of the data Many people use indexed se-quential files because the software is available, even when the application is one requiring direct references only. A correctly designed directly organised file will always provide more rapid reference

and to a greater potential throughout — than an IS file.

True, more effort has to go into the design. However, the speed of reference is always at least 10% eylinder index (seck area index for ICL users) is too large to he held in main storage it is twice as rapid.
Some manufacturers offer files-

ferred from one device to another most space.
The number of inter-block gaps example of this is VSAM, Again, this is useful when a quick transfer of data is required, but it can lead to poor file performance on the "new" device, Given the increasing speeds of newer disca, this performance degradation may be masked, ond only emerge when the user tries to find out why the new devices have not improved performsuce as much as was

Owen Honson is head of the Centre City University, London. He is also ies, including IBM.

I could give many more examples of the way in which a little effort at the design stage can improve file performance a few pioneers have been enthroughout its life. Why not simply huy a faster disc, and leave it at that? Sometimes that is the right answer, hut I prefer it to be a planned, rather than an automatic response. There are two reasons this. Firstly our profession badly needs to establish and use acceptable standards. To me, one of these is that design should he

optimised, not random. The second is more pragmatic, New generations of discs have ous capacities, while their speed of reference has improved relatively little over the last de-

That ensures that every file uses as little disc reference time as possible - hardly o recommendation for database, unless you really need the facilities it offers.

On the contrary, most DP reference requirements are hest met by using a simple file that is well de-

Owen Hanson

Clean room secrecy and suspicion

DESPITE much diligent work hy from IBM. The industry is no taken a computer crime wave to attrnct public attention to the in-dustry. Suddenly all is not sweet-ness and technological light, as computing notables IBM, Hitachi, Mitauhishi and Storage Tech-nology find themselves getting a lot of unwelcome publicity. Unlike most industrial trouble

spots, computing action takes place away from board rooms and corporate offices. The attention centres on computer clean rooms where advanced level R&D projects are developed in a maze of secrecy and suspicion. That the clean room operation will in all probability only bestow on the company a limited technological lead, and will in any case be shunned by the potential user until couraged to take the plunge, is a matter happily ignored by all

Just why the Japanese com-panies think it necessary to un-filtrate IBM in order to discover sensitive computer developments is not clear. The more traditional espionage path is to recruit the senior members of the development team hy dangling be-fore them high pay prospects and ample resources.

Public attention appears to have zapped into computing following the success of the hook by Tracy Machine, which revealed how top Digital Equipment engineers dcseried the company to set up a rival organisation. The fact that this is standard industry practice was not emphasised in the book.

A spot of basic Industry research would have revealed to the author that most American high technology computing companies

Such stupid

experts

experiencing a second grammy a lor

Fortunately, espionage, incine and opportunism has not value penetrated the DP insulation Computing, as any visitor to a IDPM hranch meeting with the firm, is a matter of close cooperation and self-help. Symmetric tion and self-help. Sympother concern and advice are teads available for the installation which is experiencing more than in a quota of head crashes or open donal aborts.

Increasingly, user groups at not seen as propa for the respective suppliers, or a channel for one. saving stationery, but as a prosen group for users to prod and a courage their supplier to be their commitments. The immed ate reaction of most equipment auppliers is to express total sign be accused of performing belo

The head crashes are obvious the fault of the air condition trunking, the cleaners or the we competitive media products. If the user had been misguided enough to have shopped around for E

Crime investigations within it computer department terife around such matters as the em-sive use of biro pens and to coutrol room 'phone, More wetion is devoted to controlling to machine-room shift total than & any possible infringements operational rules and regulation That the senior programmer a developed a method of illegi using a computer to process he off-course betting strategy is of ka interest than his manipulation of the expenses returns.

At IBM we were taught to place the cylinder index of an 1S file at the start or end of the data area.

better, and in cases for which the

tore facilities, in which the user

has no idea of the physical location

of a file. This is convenient, but it

prevents the user optimising file

design, and can lead to gross ineffi-

Others allow a file to be trans-

An eye on the Palace

PERHAPS a member of the Queen's security staff should have turned up at the Fifth Generation conference. A thing or two could have been learned about image processing to avert that embarras-

aion cameras with powerful pat-tern recognition techniques, and it would be possible to install a system at Buckingham Palace that would distinguish between friend

would have their photographs stored on the system in digitised form. These pictures would then be compared with live pictures taken by the cameras of people passing hy.
Technology is already replacing
the prowling watchman with his sing break-in at the Palace.

Combine high resolution televi-

psck of dogs at factory aites in the belief that machines do not doze off or turn a blind eye.

and foe at a distance. Charles, Di and Prince Will

machines is their dependence on people for their lifeblood. They can be switched off. A takeover at Telecom

READING about the rumoured rift hetween British Telecom chairman Sir George Jefferson and his managing director Peter Benton, I was reminded of the time some months ago when I was You need to be sure that there will be no clash between bank sorting trying to unearth the origins of BT's newly competitive stance. I numbers used to access the records, but if there is a difficulty London overlay network, which commercial rival Mercury, was thought to have been Benton's idea drawn from his experience with tions. Every file has its space overhead and one of these is saved. British Gas while at consultants

McKinsey.

Basically the principle was that if better service and speedier supply were of greater value than the standard service to a certain The user does not have a separate operations to carry out, and secur-lty copying should be easier.
Following the rule of less parts, the system should be more simple.

Cliff Dilloway

twice as much to provide might yield three times the income, for

Ironically the fallihility of these

Sir George appeared distinctly ruffled at the suggestion, "I don't releasing a cloud of chaff to act as decoy. Chaff, you will remember, remember hearing anything like that from Benton" he said. "I are tiny slivers of metal which can rather fancy it was my idea."

found its target.

The missile launched at the ex-Sir George is said to be making more of the day-to-day decisions in the running of BT. He certainly took over the driving seat at BT sation that HMS Sheffield was sunk off the Falklands because an expert system on board had failed press conferences as soon as he came aboard. Benton, who himself had been a favourite for the chairmanship before Sir George was chosen, was first relegated to the hackground and then disappressed assignation. to respond when it detected the oncoming Exocet. The system had been told that Exocet was a friendly missile.

The chaff sent up by the expert system people was the discretized. peared entirely.

The question remains whether, like Gilbert and Sullivan, they are type of customer, then that type of customer should be offered the improved service at a higher price.

An improved service which cost in a certain the question remains whether, like Gilbert and Sullivan, they are nevertheless a good team, or whether there ain't enough room for the both of 'em,

Your every wish recorded

restricted in the register that the same it is

Marathon man ADMISSION TO THIS CLUB IS BY BARYCODE — not half!

THEY say half a marathon is beter than no marathon at all. But for une prefer to go a whole by rather than leave half a hog hill caten. So I did not take part in the 1982 Sinclair Cambridge Femal Half-Marathon, held last Sunda Clive Sinclair himself must have

found it difficult to stop half-ns, since he too is used to the fall unexpurgated 26.2 miles. Perha that explains his somewhat disp pointing position well down to field, in a time of one how \$1.40 minutes — which is not much is than the world record for a far

marathon. The UK record holder t PROMOTERS of rule-based exformer Commonwealth Gund pert systems recently diverted an Exocet missile fired at them by winner in the marahon, in Thompson, won Sinclair in picnic in the creditable but use tounding time of one hour 5 mi fool a missile into thinking it has utes and 41 seconds.

Deathless prose

THAT most elegant and a ahused instrument of tunation, the English language, it reseased of such power that a constant entering a constant care often constant meaning somewhat divorce her

been told that Exocet was a friendly missile.

The chaff sent up by the expert systems people was the disarming question: "How could an expert system be so stupid?"

Keeping in touch

ICL had a strong presence at last week's Flith Generation Conference in London. The official reason is that ICL wants to keep in touch with all the latest hot technology.

The real reason according to one wag, is quite different; ICL wants to know from whom it will be huying its computers in ten years time.

ComputerWeekly

Ouadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, July 22, 1982

Victim of the revolution

NORMALLY our columns, including this one, are devoted to reports and analyses of news and developments in industry and in research establishments. This does not mean that we are oblivious to the efforts of that unsung hero of the computing commutaty, the DP manager, whose job it is to make all this technological wizardry do useful things for his otganisation.

The DP manager's job is strikingly reminiscent of that of Siguphus, the Ancient Greek gentleman who was condemned to push a boulder up a hill for all eternity. Every time he got it to the top, its momentum sent it rolling to the bottom, and down he had to go to start all over again.

Similarly, the DP manager's job is never done. No sooner is one application implemented than another is wanted. When he has set up a smooth running batch operation. along comes the call for transaction processing. Data volumes are ever growing, requiring more and more storage. To cope with it all the machine needs to be upgraded every so often, and technology rushes along unchecked in the background to give him the further problems of conver-

He has to do all this without much sympathy or appreciation from his employers, who are generally much more conscious of the limitations of the computer department than of its contribution. He has not had a lot of help from the industry either - it is very good at offering spanking new toys to play with, but rather less good at solving his

True, evolution not revolution was the catchphrase of the Seventies, and this represented an altempt by the mainframe companies at least to make Sisyphus' boulder a little less beavy. Anyone who has had to migrate from DOS to OS to MVS, however, nr from George to VME, could be forgiven for thinking that this was little more than a marketing

Nor is the top of the hill yet in sight. We shall not refer to the fifth generation here, which chucks out the idea of evolution with a vengeance, and at the very thought of which DPMs must be shuddering in horror. Merely extrapolating from the existing situation shows there are quite enough headaches without that.

Take, for example, data storage. Demand for disc storage is said to be growing at a rate of 40% a year. This means that an installation with one gigabyte (1,000 megabytes) of online storage today will have 15 gigabytes by 1990, and will in the following year have to add five times as much additional storage as the total it possesses today.

Even if that 40% is an exaggeration, we have enough problems making use of what we have today. Existing database management systems are already proving unsatisfactory, which is why the relational database has become one of the latest fashionable panaceas.

Hardware, too, is unable to cope, prompting developments like Britton-Lee's database machine and Storage Technology's VSS, not to mention ICL's rather more innovative (and unfortunately rather more revolutionary) CAPS.

Doubtless these products and others too will gradually gain acceptance as a sort of lifebelt to prevent our commerdisations from drowning in their own data. Bu there is no sign that they are really going to solve the basic

And data management is only one of the problems. Similar analyses could be made in respect of the networks which are necessary to disseminate this data, and of the presentation techniques which are necessary to make sure it is understood.

Sisyphus never did get to the top of his hill. It doesn't

look as if the DP manager will either. Whizzkid technocrats altting in their plush offices dreaming idle dreams about vector processing natural language mousetraps should take time off once in a while to spare a thought for the ultimate victim of their imaginings.

1984 and all that

THIS week's example of the strange things people say about computers was sent in by G. L. Manning of Edgware, Middlesex, who wins £5.

The Sinclair is equipped with IK and with 64K you could make a stab at ICI's payroll.

Simon Hoggart in The Observer

LETTERS

IT means one thing - communication

"IF anyone does not yet know that 1982 is loformation Technology year, then the enormous campaign currently being mounted by the Department of Industry (Dol) must be failing." This is Philip Conford's opening to a critique of IT Year (CW, June 24).

Conford environment

Conford envisages the IT campaign as being one of propaganda in order to divert people's atten-tion from the more fundamental problems in their lives. He claims that emphasis has been put on coercing the young into adopting IT skills to turn them into the workers of tomorrow, thus accepting a role of "functionless

Perhaps o suggestion of the meaning of Information Technology would demonstrate to Cooford and others the true content of the Dol campaign. IT concerns itself with only one thing

For the first time, we are able to control, store, process, transmit and select that which we communicate, with a flexibility and speed

I believe that we have developed

HAVING read the letter headed

"Why help these regimes?" and

the associated article "Policy on

human rights comes under fite

(CW, July 8), I was glad to note

that you drew yout readers' atten-

uon to the status of the projects

being criticised. Your correspon-

dent was obviously unaware that

these projects are sponsored by the United Nations and other de-

velopment ogencies and that UK Council for Computing Dc-

velopment activity is simed at try-

ing to make sure that the advisers

include sound British profes-

Your stricle, apart from desling with this Issue, also contains some additional points which need to be

A "senior industry source close to UKCCD" suggests that the

Council's procedures for the

the kinds of posts you mention, we do not select at all, we only identify potential candidates from the UK to be considered within the

UNO selection procedures.

I AM sorry to see you publishing an anonymous lener (CW, July 8) — for that, so far as the reader is

concerned, is what that criticism of the UK Council for Computing Development is. Why doesn't the

writer of that sour letter have the courage to say who be is? And does

he take the same stand, for

example, on the enthusiasm with which all Western governments

urge sophisticated arms on al-

Liveware File

CAN'T HELP BUT

AS WELL AS A ...

FEEL ...

Die Contract

Helping Third World

Critic should have courage

tools to date, capable of being used for any aspect of life as we now live it and are going to live it - useful in the home, for leisure, medical needs, research, and even work, all of which Conford freely admits.

However, I put it to him that the decision on whether or not to indoctrinate successive generations of Brimns, does not rest with any body on these islands. Since isolauon from the rest of the world is now a practical impossibility (thanks to IT), it is global economics which dictates our pathway.

Examining the implications of this, from what I believe Conford will agree is perhaps the most im-portant aspect of global influence, ie that on employment, the prob-lems of not developing and employing IT become apparent. It is, I believe, the hope of each

Assuming through exhaustive argument (and record unemploysucceeding generation that work, leisure and income should be ment levels), we establish the ecocontrolled to an ever-increasing degree by the individual. Whichever way this problem is re-garded, the simple fact that a cer-tain amount of work will maintain (particularly youth)? Is IT Pied Piper/Jesuit led, or an opportunity a certain living standard is unques-

accused of heing restrictive.

above, it does try to ensure that

British content.

UN sponsored projects have a

Our huoklet "Sharing the

Wealth of Computer Technology lists the conditions necessary for

the successful development and use of computing: the availability

of human skills, user under-

a national strotegy for de-

countries satisfy these criteria.

of course I may be wrong.

set up, and I pay a modest indi-vidual subscription.

JACK HOWLETT

THE REYAL CORGIS

DIDNI DO THEIR JOB.

MASTIFF SYSTEM

NOULD HAVE!

T P.

Service Services

2/1

20)

dispersion we must control the key element – work.

Have any of the schools pushing The great difficulties which computer and IT usage, dropped English, music, the arts or sports as major educational subjects? Are all children of the relevant age still arise when this is beyond our control are so very evident today in the motor industry, steel industry etc. To surmount these problems not able to choose their subjects, now to an even greater extent. Finally on Conford's rather weak we must produce and compete in world markets. The world has shown that IT is now a major part argument accusing the Dol and IT of its organisation; and the cus-tomer is proving to us time and propaganda, are history and English not already forms of again that when confronted with competition, he is blind to papropaganda and indoctrination? If after centuries of English indoctritriotism. Consequently, British innation, we still have illiterate people, what chance ITI dustry will fail, unemployment rise, living standards fall and an become perpetual. Simplistic — perhaps, hut since man's control of the simple is his most powerful area of influence, does not the simple in t

As for a race of people whose functionless lives involve working keyboards: consider firstly, how functional unskilled production line work is, and secondly the uproar that would have occurred in 1882 if you had said to the population of the UK "Thank you very much, but only 3% of you will be required to work our land in 70 years' time."

IT is not all going to happen tomorrow, so let adaptability be our genius, as it has so for proved **DESMOND BENJAMIN**

Baptism of Prolog

YOUR article (CW, June 24) gave excellent coverage of a significant individuals and organisations who event in the growing commercial and industrial recognition of the importance of the lifth generation support our aims, we can hardly he The same source is critical of "the type of projects which they language, Prolog. This was the ile-cision by ICL to investigate the use are taking on" and refers to "grandiose scienufic projects". The of Prolog for its CAFS controller, with the help of the Prolog team at Council does not, of course, take on systems implementation projects at all although, as indicated Imperial College.

plistic become the inevitable?

nomic necessity for IT, how do we

then draw the line between educat-

ing and indoctrinating the public

for the uninformed?

In this case I feel that the answer

However, the statement by the author that "Implementation on CAFS would give Prolog its hap-

cial marketplace" is incorrect. My company has been selling a version of Prolog for DEC PDP-11s since November. We have inade sales in Dciunork and Italy, and have received serious inquiries from as far afield as Australia and Japan itself I would suggest that the

worldwide commercial haptism of

Prolog lias already taken place.
ALEX GOODALI. Managing Director

Expert Systems Ltd



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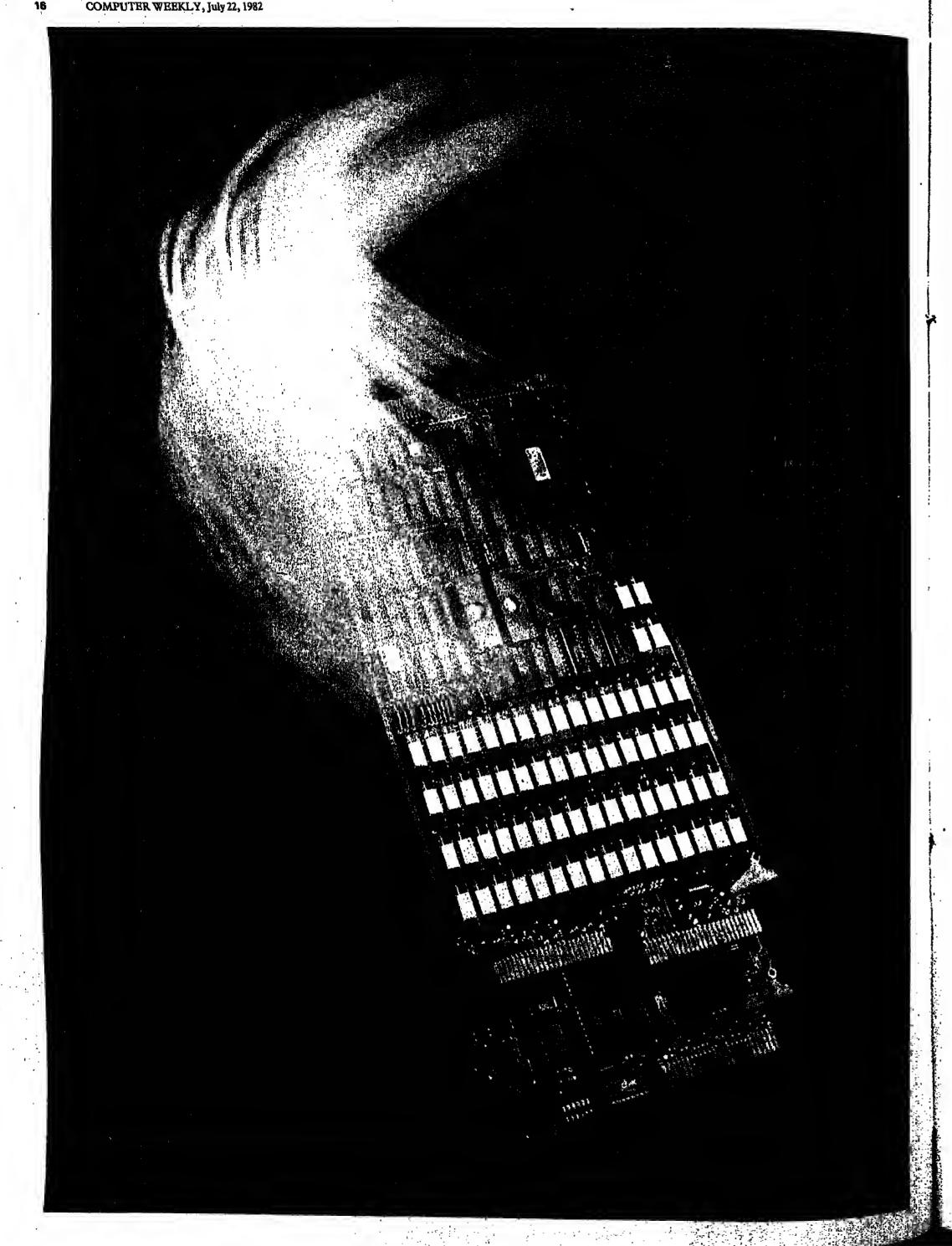
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peripherals, from flexible and hard discs (including the new 5" mini-Winchester) to terminals and printers.

The HP 1000 A-Series. We don't think you'll find a better combination of speed, software and power for the price. Give your local sales office a call to arrange a hands-on demonstration.

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Price is in OEM quantities of 100. Price is exclusive of VAT and correct at time of going to press.



Local HP offices are also at Bristol, Redhill, Southampton, London Colney, Altrincham, Solihull, Castleford, Belfast, South Queensferry - Scotland, Dublin - Eire.

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AN important feature of Setten & dangerous edges, unlike mesal ones, Durward's Atlansa SD data filing system is the plastic slide suspension in a binder without the need for mechanism which doubles up at a printous so be removed. The loader carrying hundle.

This plustic handle has no sharp or

"In our ten years of attending exhibitions all

over the world we rate the Gulf Computer

Exhibition as one of the best three we have

"The quality of attendance was very high indeed. We have a tremendous number of useful leads to follow up from all over the G

Including Saudi Arabia and Bahrain."

FRANK HARRISON, GENERAL MANAGER. SYSTIME (CLIEF!)

ETIOY PLAKE, PACKAGE CONSULTANT, ALFIHA DATA PROCESSING, ARU DHABI

Systematic registration of visitors'

* 3,038 top-quality visitors came

from 36 worldwide countries.

* 02.5% of exhibitors were "very

and exhibitors' questionnaires

"The exhibition was

and efficiently in

was ideal

SUCCE

ever taken part in."

DON'T MISS THE

2ND GULF COMPUTER

At the Dubai International Trade Centre, Dubai, UAE, December 13-16 1982.

These were just some of the comments made at the outstandingly successful 1981 exhibition:

pleased.'

Setten & Durward Ltd (CW), Carnarvon Works, Waterloo Road, Llandriadod Wells, Powys LDQ 6BH. Tel: 0597 2791.

"I have not had one visitor who was not serious

vill get a great deal of benefit

IF YOU WANT TO DO

BUSINESS IN THE

BOOMING COMPUTER

MARKET OF THE

ARABIAN GULF

GET IN TOUCH NOW

We not only concluded a lot of business at the

Exhibition, but we also had a ball. The hotels,

the shopping and the beaches in Dubai are

business proposition. We are vers

s exhibition'

amongst the best I've ever seen."

NAME OF EXHIBITOR WITHHELD BY

Monitoring system helps assess use of manpower

JUST launched is a computer system which, says its developer Mitrefinch, automatically moni
formation including the number of ploying 6,000 with potential to people employed and their whereatouts, near the properties of the potential to 4 or fewer. tors and can help manage the costeffective use of mannower.

The expense and performance of the workforce can be measured at all times, accurately and immediately, says the company. The aystem features the Mitrefinch MF 3000 series minicomputer.

Electronic clocking-in technology automatically transfera One of the company's analyses complete manpower attendance in-

and overtime and shift arrangements. Payslips are worked out

Immediate financial analysis is also made possible, says the con-pany. Central display consoler ca be programmed to reveal current costs of production, and therefore An immediate benefit, says Mitrefinch, is to reduce or even eliminate any administrative element in the work of time-keeping, cuntrol highlight any changes necessary in staffing against budgets. and payroll supervisory staff, as well as increasing overall accuracy.

Mittefinch Ltd (CW), Tover

PRODUCTS - 2

Graphics

for 16-bit

market

THREE Vector Graphic system

have been released by Almarc. The

first, the Vector 4 (above) incorporates both Z80 and 8088 processors

and has been designed to provide compatibility with existing soft-ware, with an eye towards the fast developing 16-bit market.

Operating systems include CP/M 2.5 MS-DOS and Oasis.

fhe system comes with either two

integral floppies or one integral floppy and Winchester. 128K RAM is standard expandable to 256K, and three \$100 card slots are provided for interfaces.

The Vector 4 includes a detacha-

ble keyboard and a green phosphor video display screen which, Al-marc believes, helps give faster

access to screeo memory and en-hanced graphics on the 640 x 312

pixel display.

Along with the V4 come the Multishare systems, 5005E and 1032E, with 5 and 32 megabytes of

hard disc storage, both accommod-ating up to five users.

Imarc Data Systems Ltd

(CW), Grest Freeman Street,

controllers or I/O boards. .

System 80

SPERRY Univac has introduced two new models in its System 80

greater throughput capacity, and growth potential, says the com-

pany.

The key benefits of the new models, known as Model 4 and Model 6, are greater disc storage capacity up to 4.8 billion bytes, s new disc cache feature that improves the input/output operation,

new streamer tape providing a

high-speed streaming mode opera-tion for disc media backup, and a new local workatation with en-hanced capabilities.

Representing performance up-grades for the existing Model 3 and

Model 5, the new processors also feature enhanced software, includ-

ing improved job scheduling, opti-mised share file performance, en-

hanced memory management, and a performance improvement in the

Escort programming language.

Winchester

interface

AN interface for Winchester hard

discs has been added to the Moste

STD bus range of nucrocomputer boards from Lock Microsystems Designated the MDX SASI board

it supports the Shugart Associates system Interface, and works with both 51/4-inch and 8-inch drives

Other features include a connecto

for direct memory access (polled or

nterrupt driven), 2.5MHz o

4MHz operation, and a diagnostic

Lock Microsystems (CW), Neville Street, Oldham, Lanes OL9

6LF. Tel: (061-652) 0431.

Cover cuts printer noise

A NEW name in the office com-puting ancillaries market, Durst UK of Epaom, Surrey, has launched a market and surrey, has

aunched a range of acoustic covers constructed in aluminium, with a

for desktop computer printer ter-

range of micros

proved system performance, Models 3 and 5 will be avilable at

the same time.

The System 80 family of computers is based on advanced technology including multiple

CAD system's drafting enhanced

has announced two enhancements to its recently launched GDS 3 computer-aided design system. The first of these, called Multiplot, is an enhancement to drafting productivity. It enables a user to quickly construct new drawings by using existing material held within his CAD system.

Them as required and assemble them into a new drawing, interactively on the screen, without the occessity of re-drawing the object. The new drawing can then be plotted out directly or, alternatively, recorded in ita own right in

Multiplot allows a GDS user to the GDS drawing file to act as the assemble various views or windows of any existing drawing and then re-scale, re-position and rotate them as required and assemble

basis for other design projects.
A second GDS 3D subsystem provides the facilities necessary for a GDS user to generate three-di-mensional information from a lor 2.5 dimensional drawing.

Applied Research of Can-bridge Ltd (CW), 4 Jesus Lan, Cambridge GBS SBA, Tel: 622

Pocket terminal fits phone

for use with calculators

TWO miniature, dot matrix, impact printers have been introduced

by Epson UK.
The Model-160 and Model-161 are suitable for use with pocket calculators, microcomputers, point of sale terminals and other applications such as desktop business calculators where a clear printout is essential for record keeping, says Epson.

The Model-160 can print s maximum of 144 dots per line or a naximum of 24 columns of 5 × 7 dot matrix characters on 58mm width paper. The Model-161 has a slightly larger print size and can print 96 dots per line or a maximum of 16 columns of 5 × 7 dot matrix characters, also on 58mm width paper. Print apeed for the Model-160 is 0.7 lines/sec; for the Model-161 ir is 1 line per second.

A replaceable single colour case is provided and approximately 5 × 100 Mines care be printed before a new ribbdn is required. Colours available are

These printers operate from s
4.5V DC supply and their motors
draw a mean current of 0.2A. Ambient operating temperature range for both models is 0°C to +50°C.

Epson UK Ltd (CW) Dorland
House, 388 High Street, Wembley, Middlesex. Tel: 01-900 0466.

to electronic mail

Durat's covers were shown to produce an overall reduction in noise level of 14.5dBA, which noise level of 14.5dBA, which represents a 95% reduction in noise energy compared to an unenof commoo databases.

A COMPREHENSIVE range of cabinets and consoles la now being offered by Communication Accessories and Equipment Limited (CAE). The company, which supplies which assembles and sub-systems to the electronics and communications industries, bas expanded its manufacturing facilities to increase production of industry standard cabinets and consoles.

cabinets and consoles. Communications Accessorisa & Equipment (CW), Akeman Street, Tring, Herts HP23 6AJ. Tel: (6442 82) 4011/5551.

Expanding

Office models

cover, providing easy visual an physical access to the machine.

Durst UK Ltd (CW), Feistead

OPERATORS often suffer from hypertension, neck atrain, back pain and similar problems.

There are five advanced models in the Facit Office Furniture range which may help. Facit offers a chairbase table unit; a mobile terminal table with two stems; a screen-hung terminal table with individually adjustable table top; a machine table with recessed well; and a terminal desk with a moduler top.

Facit Office Furniture Division (CW), 3/4 Little Portland Street, London W1. Tel: 01-636 1164.



Portable stocktaking device in use at Allied Breweries pubs

Briefcase stocktaking

microprocessors, multiple bus architecture, Emitter Coupled Logic (ECL), and Large-Scale Integration (LSI).

Main storage for the Models 4 and 6 start at \$12 Kbytes and can go up to a maximum of four megabytes. THE "computer in a briefcase" which is currendy being intro-duced for stocktaking at the 320 managed houses of Joshus Tetley & Son, Allied Breweries Leeds aubsidiary, has been produced by Leeds-based Systime.

It weighs only 201b and includes a processor, a three-inch video display, floppy disc and printer.

ing system, which supports a high level of multiprocessing, a full range of programming languages, and systems for transaction and The portable stocktaking device, PSD, provides several impordatabase processing, says Univac. tant advantages over existing Sperry Univac (CW) Ltd, Stonebudge Park, North Circu-lar Road, London NW10 BLS. Tel: 01-965 0511, methods which require the stocktaker to read through shesvea of sales and stock data, says Allied

500 product lines: another is that it is fully interactive and guides the

by telling him what to do next.

The processor is an Intel 8080 with 32K dynamic RAM. There is a 3-inch video monitor, driven by Intel 8275 CRT controller; a Mitsubishi thermal printer; asynchronous and bisynchronous communications capability via standard RS232 interface; and s 5¼-inch, single-sided, 80-K byte floppy

diskette.
Systlme Ltd (CW), 432 Dewsbury Road, Leeds LS11 7DF.
Tel: 0532 702211.

Micro performs ʻlike mini'

FUTURE Technology, the UK distributor of Micro Five computers, has launebed Micro Five's Series 3000 16-bit business computer through its network of dealers.
The Series 3000 is based on the latel 8086 and is capable, says Future Technology, of minicomputer preformance.

The company says the machine is designed to minimise processor overheads by providing data traisfer by direct memory access on all of its 11 input and output ports. Winchester disc drives have been integrated into the deskrop processor cebinet, giving storage options of 10, 34 or 70 Mbyte. In addition, an integrated cartridge tape and floppy disc are supported for security backup and software

The system supports three operating systems: MPSL's MicroCobol BOS; CP/M-MP/M-86; and Stardos, Micro Five's

nıulti-tiser system. Future Technology Ltd (CW), Britannia Way, Lichfield, Staffs WS14 9UY. Tel: 05432 57701.

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How we've done it

Middle East Computing began as a single-issue publication, backing the Gulf Computer Exhibition and Conference at Dubai last December, its enormous success revealed such an urgent and widespread demand for computer product information that it will be published regularly from

6000 copies will be sent to established computer users or key personnel within government and major business organisations, in the Middle East countries predominant in the computer market. The circulation was compiled through the full research resources of Computer. Weekly and IPC Business Press backed by contacts made at the Gulf Computer Exhibition.

Middle East

Advertisement Manager: Harry Hutson, Middle East Computing Quadrant House, The Quadrant, Sutton, Surray SM2 5AS Tel. 01-661 3500 Ein 8539



(TICK APPROPRIATE BOX) I am interested in details about; iaking a stand 🗆 attending the Conference D visiong the Exhibition [3]

THE 1981 GULF COMPUTER EXHIBITION

satisfied" or "satisfied."

* 150 delegates attended the

simultaneous Gulf Computer

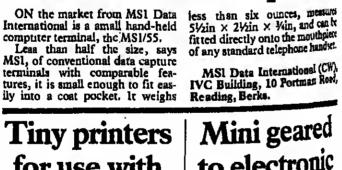
exhibition.

Conference.

* 50% made direct sales during the

2ND GULF COMPUTER EXHIBITION 13-16 DECEMBER 1982 Dubai international trade centre, dubai, u.a.e.

Organised by Trade Centur Management Company (in association with Middle East Computing) London: 17 Waterlou Place, London, SW1Y 4AR. Tel: 01-930 3881. Telex: 888193 Gennav (Dubai: P.O. Boo 9292, Bubai, U.A.E. Tel: 47-2200 Telex: 47474 Dicern



A family of minicomputer systems, the 6000 series, has been launched by Billiogs, Computer Corp of Missouri, US.

The series is an implementation of the recently introduced Billiog distributed processing network the computer of the recently introduced by the computer of the recently introduced by the computer of the

using functionally structured distribution, and is geared in users requiring between 25 and

The company says that because of the nature of this new tech nology, this system is ideally suited for applications such a electronic mail and remote exess.

Concurrent with the amount ment of the 6000 line, Billing demonstrated electronic mail soft.

demonstrated electronic man some ware capable of supporting more than 10,000 osers.

Because of the network architecture, it is possible to such tecture, it is possible to such injunerous CPUs on the support of the providing the Down tecture of the hadde for the power required to hadde for the more active database, says him ore active database, says him to the control of the con

Mass storage devices supported
by the system include 30 and 40
megabyte Winchester drives the
streaming tape at the Windhest

DISC DRIVES I

The marketing pace hots up for the plug-compatibles

PCMs are having to cope with new marketing ploys by IBM and increased competition, together with a fall-off in demand Alan Simpson reports

ONCE again the large-scale disc pre-announce new machine and storage market has become a front equipment ranges in advance of line issue. Even the most microplus not a little confusion.

of the Atlantic have been having a gala time interpreting the situation by releasing future marketing gala time interpreting the situation for those of us without the benefits f a direct line into IBM, Wall Street or leading brokerage warning approach is justified on

IBM computer range will have an immediate impact on the supply and demand of existing disc pro-

ompanica such as IBM tend to ances to exist

equipment ranges in advance of production delivery schedules. Unlike the automobile industry, where great secrecy surrounds the introduction of new modela until such time as local dealers are well

The reasoning behind this early grounds that existing users need to plan ahead their growth path for

than merely giving growth assur-ances to existing or potential cus-

tomers. The value of existing equipment plummets in the face of the impending new system which by tradition, is required to offer more power for less cash.

In order to secure a place in the early delivery queue, multiple first-day orders are placed, many of which will turn out to be merely a security bolding operation by

Meanwhile, other ripples are spreading out towards the manufacturers of media smrage systems. In order to meet the anticipated demand for new disc systems to match the new computing range, developments are initiated. But in the meantime existing users have to bridge the system gap by incorporating ever larger amounts of

meet the escalating demands for

existing atorage products.

Unlike most other manufacturers, IBM is blessed with a highly competitive body of keen media suppliers, known collectively as olug-compatible manufacturers. The key to PCM marketing is not only to anticipate IBM new tech-nology releases, but to predict timescales. Although the PCMs totally sure that they have read the signals correctly until IBM releases its first machine.

Not surprisingly, the PCMs are All of which puts the disc supplier, IBM included, in some-IBM equipment, and little time is



THOMPSON Given line management responsibili

lost in stripping it down to basic electronics. Getting the right de-gree of intelligence is all-important for the PCMs, whose reputation and prestige are on the production

year, which has the usual effect of framatically lowering the secondhand price of its existing 3033

models, in some cases to under 35% of list price.

At the same time, because of IBMs inability to provide associated high performance 3380 disc storage drives, the 3081 range has een somewhat neglected.

Suddenly, all is about to change once more. IBM has rather unexpectedly announced that the 3380 developments and production bugs have been sorted out and the company will be able to commence international deliveries next

month, by which time It is esti-mated over 1,500 will have been installed in the US.

The news has dlamayed the PCMa, one of whom only last month was promising delivery shipments for the third quarter of

next year.
The PCM marketplace, depressed for long. In most cases it is as well informed on IbM marketing and production strategies as IBM board members Bur this time round, the PCMs could have a serious problem on their hands.
Not only are they having to compete with a more hostile IBM, but with their equally aggressive PCM competitors, several of whom have recently regrouped their marketing operations. There is also the matter of a user demand slow-down, both here in Europe and in the US.

According to John Fuller, managing director of Eaher-based brokerage company FCML, the plug-compatible industry is in a highly vulnerable position following recent marketing ploys by IBM.

In addition, the companies themselves are each undergoing certain change and restructuring.

certain change and restructuring.
Storage Technology has recently
lost senior members of its development team to the newly
established company Ibis. Closer
to bome, Derek Thompson has
been made head of HW precedures.

to bome, Derek Thompson has been made head of UK nperations to boost flagging sales.

Memores is similarly regrouping its resources following its acquisition by Burroughs, and is hoping to re-establish its European marketing position. Control Data also appears to be experiencing problems and has recently amnounced that it is temporarily closing down some of its peripheral equipment plants between now and September. Even so CDC is tipped by many observers to period by the requirements for large with the evelopment of company works, and more compression to experiencing structures of corporate database, structures of corporate the evelopment of company works, and more compression to the evelopments to confine the evelopment of confined the requirements for large with the requirements for large with the requirements for

a none the

be gathering forces and can be a pected to lauoch their disc norm

year.
The established PCMs are unlikely to surrender their meries share without a keen burst of priscutting and aggressive muketing. This is one battleground where the user is bound to win.

Fuller admits to being im-pressed with the speed which like recovered its power and presign.
From what appeared a near daster, the company has recovered a reputation. IBM is more fortunate than the PCM companies. If IBM does make a supply mistake, user become angry at first, but rapidly forgive and forgret.

forgive and forget.
The PCMs cannot afford a make any mistakes and will beaut from the past 18 months when, b all accounts, they had a sales field good marketing and promotion

The collective view of the dis storage system suppliers it the ing in demand, with users experiencing only limited growth. Martin Ginger, European marketing manager for disc systems of Sp.

IBM has recovered its reputation from what appeared a near-disaster

rage Technology, believes that it sales setbark is more a matter of user deferment. The only position decision that many users work wide are making is not to make t However, Ginger believes the

there is only an a parent surplus disc. Overall sales are surplus shead of last year's record level.

This view is shared by Car Proctor of Ibis who believes the IBM alone will not be able to med the pent-up demand for large cartiers assured as Similarly.

city storage systems. Similarly, Fuller agrees that the marky, which has experienced a grown

COMPUTER SUPPLIES - 1 I

Our three-page feature opens with a quick review by Boris Sedacca of this capital-intensive industry

IBM rules the market

THE computer industry is not all fast moving and dynamic. Certain sectors, in particular computer supplies, can be described as steady-state at best.

But in the case of computer supplies, although the products themselves are not particularly exciting when compared with the hardware, the equipment needed to produce them can represent a to produce them can represent a substantial capital investment.

In this kind of market for undifferentiated products, where changes are not very frequent, ex-ploiting economies of scale in pro-duction is virtually the only way for companies to operate profitably especially in the case of magnetic

floppy disc on the market, but the only difference between them is in

themselves and are content to let

On the other hand, a computer perip berala manufacturer like Control Data would regard floppy disc manufacture as a way of get-ting the cash in to feed research and development programmes on more advanced storage technologies, with the aim of keeping up or

Although nobody paid much at-teotion to the media before, the

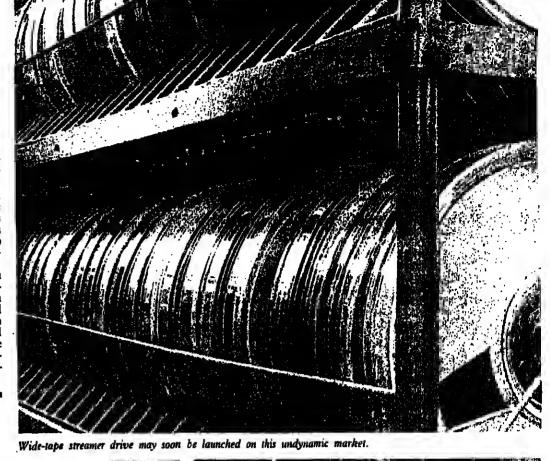
So many companies have jumped on to the supplies

bandwagon that a lot tend to fall off, says Brian Payne

3380 disc drive platters have demonstrated bow important this area ia. Today's R&D problems at IBM are tomorrow's marketing opportunities for computer supplies manufacturers.
As IBM has made no significant

announcement for years on the magnetic tape front, the market is fairly static at the moment, but a new wide-tape streamer drive to back up 3380 disc drives is expected soon. pected soon.

move fast and offer a cheaper alter-native to the IBM tape will make a at a premium, provided they can move before others jump in and saturate the market. By that time the user rather than the manufac-



Buying and selling are harder than you think

In recent years a small number of specialist computer supplies companies have been developing what is prohably the casest and

These catalogue companies have mostly been established over s period of years and have developed carefully selected or individually

over most of their competitors.

They can benefit from economies

means that prices can be

BUYING supplies sounds simple; so does the selling of supplies in an ever locressing market. Unfortun-stely, Tom, Dick and Harry think

Hundreds of small companies have sprung into being on the premise that in a rapidly growing market there must be a lot of business. ness to be had by all. The hardware and software business is high risk and needs a lot of ex-

pertise, and big financial backing.
So what's left? The ancillary,
tectstory and supplies market. All
dive in; the water's fine; it doesn't
need a lot of experience and ex-

The answer in most cases is "Yes, it does." Advising the firstnine user, especially on require-ments such as identification and choice of magnetic media, correct care, storage, filing of the media and output printouts, forms hand-

ing, fire printection or safe housing of backup data, dust and dirt cootrol and so on, does need a lot of knowledge and experience, plus the ability to obtain and supply that product at the right price.

The first thought of most first-time buyers is "Oh, I'll buy if from the people who supplied the computer." As most professionals who have been in the industry for some time know, this can be a very exputer." As most professionals who have been in the industry for some and know, this can be a very expensive method of buying supplies. As this area is a semi-capuver manufacturer, ORM, or agent can have been in the industry for some intermediate in the industry for some intermediate in the computer manufacturer, ORM, or agent can be very often does charge that prices can be very contact the computer manufacturer. ORM, or agent can be very contact the computer manufacturer of the computer manufacturer of the computer of the computer of scale: they can be used to be u can, and very often does, charge what he likes for a given product,

what he likes for a given product, especially magnetic media.

These offers of supplies at sky-like prices, usually justified by the salesman with the claim that all items have been individually examined and tested, etc.; are very often interpersed with such endearing words as "If you don't use our media/recommended product, it may nullify or affect the guarantee and maintenance contract."

Fortunately, most computer professionals no longer give in tothis type of pressure. In most cases, they are aware that they can buy an identical product (even made by the same manufacturer) at considerably less and sometimes down to half the price.

The even media.

It also means that if the customer does not want the standard design, it is possible for him to have the product either modified or built to his own specifications at relatively little extra cost.

The better distributorships for items like quality fire-sates and forms handling kit are generally given to these companies, as they can do a better job of marketing with a much higher sales turnover unfough fight catalogues. For the analysis of the price with a much like of the customer the best choice of equipment or product at the half the price. of equipment or product at the best price for his requirements.

The next possibility in buying supplies is to find the individual manufacturers of magnetic media, ribbons, fire-safes or furniture; cootact them individually and make an appointment to see each salesman. As large stocks are usually held, the goods can be despatched shortly after the receipt of an

order.
The biggest nightmare, and cer-minly the most confusing for com-This sort of approach is ex- puter buyers, is the selection of

consumable products such as prin-ier ribbons, continuous labels, cleaning products and magnetic media, There is a limited number der which you can buy their proor more important, that it will stay
the same from one month to the

most cost effective method of pur-chasing all the items required. This is the age of the (usually) comprehensive and informative right product at the right price, with the tight barder; it all works fine. What happens if the supplier of that label (and surprisingly in some cases, even big name labels colour catalogue, where the buyers can look through at their leaser and pick out the items they are interested in, look up the price, and if further information or adare not the manufacturer) changes his buying policy, or sometimes buys from several manufacturers? vice is needed, experienced people are available at the other end of the telephone to help them. What could be simpler? You could be bark at square one

with the next delivery!
Having said all that, there is often little difference from one brand name to another, especially with magnetic media. My advice is to get a good comprimise between A company of this type needs m be a certain size to sustain a cata-logue successfully, and they therefore have a distinct advantage quality and price.

On the other hand, buying too cheaply can create problems. There is usually a reason (like they can't sell it any other way.) While ners have to be cut in manufacture very near the line, and the quality is more likely sometimes m slip the wrong side of this very critical line.

problems buying supplies. The other side of the lence is no picnic years, there has been much coming and sound of companies, esperally recently in the cut-price lesgue.

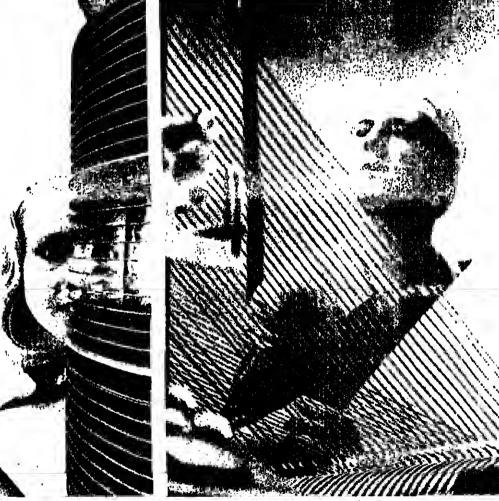
Very often this is a last ditch effort

by a company desperately trying to atay affort on server seas, rather than a strategic marketing policy.

Owing to the tremendous number of companies that have jumped on to the supplies bandwagen, a lot also tend to fall off, hurting themselves and others in the process. The casualty rate is the process. The casualty rate is quite high.

While the customers' budgets are restricted; or in some casea strangled, people tend to make do with things rather than buy what they should actually be using. This makes the law of the jungle (the survival of the fittest) more likely to operate. Make sure you back the

Brian Payne is marketing director





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Sloppiness in the treatment of media can result in the loss of data ... Lina Williams advises on how to prevent this Magnetic tape may not be exciting — but poor handling means disaster

dom. It is the camera, not the film; drive, never the tape. But film and disc are vital to the end result and poor tape handling and storage are probably responsible for the majority of data losses which majority of data losses which simple but important procedures

can prevent.

The majority of tape problems are caused by either poor handling or hardware faulta. Magnetic fielda, radar signals, metal detec-tors, X-ray contamination, high cleetrical charges, microwaves, televisioo, nuclear radiation and laaer beams have all been investigated as possible causes of data loss and have been found to pose little

In ooe test a large scrap metal electromagnet was placed 1.3 feet above recorded tapes, yet oo data loss occurred. When a horseshoe magnet strong enough to lift 40 pounds was held ooc incb from the edge of a reel a signal losa of only 22% occurred. This did not result in any data loss at all, since it was found that a signal level loss of less than 50% could be recovered.

However, any small permanent magnet could cause a loss of data i placed directly next to or on to the surface of the magnetic media and read/write head, so demagnetising should be carried out regularly.

Fire obviously poses a threat to computer tape, but two reels in tests functioned adequately after exposure to 210 degrees F and data was recovered from tapes damage, one of the most serious subjected to 230 degrees F after and common forms of tape failure,

in most magoetie storage media are ken flange. capable of retaining data up to a Damage to both edges probably temperature of approximately 1.247 degrees F.

uishers are recommended for mag-netic tape stores. Carbon dioxide is clean and contains no chemicals that could harm the tape. Tape heads have become contaminated

aprinkler system but should tape become water damaged it should be allowed to dry at normal room

tremely low temperatures, they should be relaxed over a period of days at gradually increasing tem-

Ideally, the work area should - an area free of airborne dust and lint. Smoking, food and drink should be prohibited and staff should, if possible, wear lint-free smocks. Temperature should be in the 60-90 degrees F range, relative humidity abould be between 20%

Whenever possible, the air pressure within the room should be maintained at a higher level

Any small permanent magnet could cause a loss of data if placed next to the magnetic

will prevent dust infiltration through doors and windows.

A sure sign of developing edge vo months' 'rest'.

Theoretically, gamma ferric edge of the tape. A series of oicks oxide particles which are the pre-valent magnetic constituents used probably means a cracked or bro-

comes from a distorted reel as the tape is allowed to rub against the Carbon dioxide-type fire exting- flange when being used. A similar type of edge damage will also occur

if the transport is misaligned. If the transport and read/write

Frequent cleaning of the tape drive will reduce the chance of contamination spreading throughout the library.

IN ANY field, bardware excites that is kept in canisters will be with dust from a previous tape, the attention and media invites borecontaminanta can be dumped on the backing or coating aurface of subsequent tapes. This contamination will wind into the reel uoder pressure, causing it to adhere firmly to the tape aurface. Each of In the unlikely evect of computer tapes being aubjected to ex-

next time the tape is used. Fingerprints form excellent Dirt deposits will transfer from the backing of one wrap to the coating of the next, but use of lint-free gloves will eliminate this problem.

Frequent cleaning of the tape drive will reduce the chance of finom one reel of tape to others in the library. A cotton swab or lint-free pad moistened with Gene-solve-D (an Allied Chemical trade mark) or Freon TF (a DuPont trade mark), or similar cleaner is recommended for cleaning all ele-ments of the tape path on the

If other types of cleaning agenta are used they should be given time to dry thoroughly before the tape is loaded. This will prevent damage to the tape should the cleaner have any tendency to at-

tack the magnetic coating.

Wind tension should be relatively low. Six to eight ounces per half inch of tape width is sufficient to render a firm, atable wind. Too high a tension could result in high pressures within the reel that could permanently distort the polyester

loose, slippage can occur betweeo the tape layers on the reel. The next time an attempt is made to use the tape, the wrinkles and creases can disrupt contact between tape and bead and result in a series of data losses.

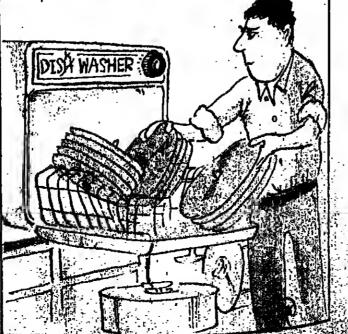
tape should immediately be

rewound properly.

Another important coosidersive layers of tape should be placed



vulnerable to damage. Tapes that have oot been used should be removed from store every six to nine mooths and exercised by winding, rewinding and



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No company can afford to be without adequate fire-resistant storage to protect valuable data, says Bob Forrest

Fire safety is a matter of commercial reality and company survival

IT IS a sad fact that no less than to the point of use of the material, 43% of all companies suffering a and that means a firesafe.

Apart from the cost of difficult, with 14% of companies which have had a fire facing a reduction in their credit rating. But perhaps this statistic is not surpria-ing, since 17% of companies ean-not furnish a financial statement

in 1980, fire loss figures reached an all-time high of £467 million, but this figure only touches the surface of the problem, ignoring those other effects which make the survival of the business after a fire

Fire protection is a logical extensien to media suppliers' existing storage ranges. A range of compu-ter supplies without fire protection seems incomplete, and office man-sgers should look at their own atorage requirements as a matter of ommercial reality and company

Of course, it is sometimes pos-sible to safeguard oneself against the effects of fire by placing all of the company's records in a properly constructed vault, but it it worth remembering that 51% of their lives moving records to safety when every instinct demands a

The only real answer must be the list is endless. The resilience of fire hose and dropped 13 feet nn to some form of fire protection close those companies who survive a rubble to simulate the effect of a

Apart from the cost of a vault. Even if they survive, life becomes staff should not have to waste their time moving material in and out of the vault every morning and even-

> devastating effect on a business? First of all, there are important financial records, such as lists of debtors, without which any attempt at debt collection is useless. Secondly, there are stock records, which are time-consuming to re-place if they still exist; and if they

> > The loss of personnel records can lead to all sorts of claims which might be difficult to 9 contest

don't, it is almost impossible to prepare a decent insurance claim if warehouse has burnt dowo. The loss of personnel records may all fires in offices occur during working bours, and it is just a little unreasonable to expect self-tosorts of claims which it might be difficult to cootest, such as merit rises, bonus payments, commis-

Lists of customers, sales records,

prepared, is admirable.
Paper is the easiest medium to protect from fire, as it obligingly only begins to ebar at 350 degrees F(176 degrees C) — although this is less than a quarter of the tem-perature of a major firel But how can a fire have such a Microform including microfilm, has a critical temperature of 150 degrees F(65.5 degrees C) and also suffers from problems of bumid-

> Magnetic tape has the same critical temperature as microfilm, but the increasingly popular floppy disc has an even lower critical temperature, just 125 degrees F(52 degrees C), with the real risk of loss of information on the floppy disc at a humidity of just 85%.

Naturally, no one really cares much about the loss of paper, mierofiche, or floppy disc alone even though these are quite expeosive. It is the information stored upon them which gives these items their value.

Firesafes are normally tested to

cope with either a one hour or a two bour blaze, withstanding temperatures of up to 1,850 degrees F(1,010 degrees C). They must be able to withstand these high tem-peratures for the apecified period without harm to their contents, and coounne to protect their contents while being cooled by a

floor collapsing in a building. Incidentally, after all of this abuse, one must still be able to opeo the safe! Some companies also offer a frec replacement safe if ooc is destroyed in a fire. Unfortunately, you can only use a firesafe once, because after doing what it was designed to do the safe is no longer usable. This is because the insula-

tion is destroyed in prutecting the A fire-resistant cabinet is not necessarily a second beat solution in terms of fite protection. A is for the cabinet to be sble to withstand temperatures of up to 1,700 degrees F(926 degrees C) for

of the building within the tested time of a good firesafe, simply be-cause there is little left to burn! one bour without damge to the contents, and sudden beating of up to 2,000 degrees I for 30 minutes without accumulating explosive gases within the cabinet. However, Some insurance companies nov insist on adequate fire protection

and certainly good fire protection is a form of insurance against the the cabinet is only a safeguard for It should be recognised that on material is completely resistant to unthinkable. Insurance companies banks, credit card companies and fire, regardless of the intensity. building societies are among the organisations which seek to protect For that matter, while so-called fire-resistant buildings can be built, woodeo furniture and other their future and that of their employees, members or sbareholders. By nature, such organisations materials, including paper, insulation and wiring, inside the build-ing can be sufficient for a fire to are more security conscious, but

gain a hold and generate consider-able host. he name of the game. Forumately, most files pass The author is general manager of Shannon Dolastor.

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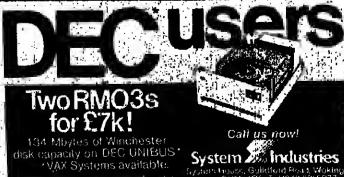
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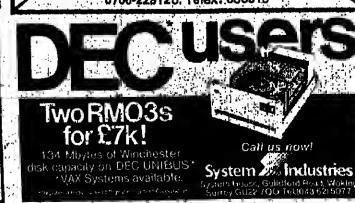
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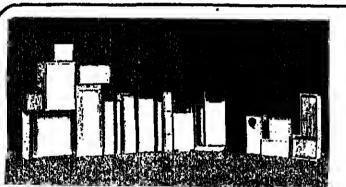
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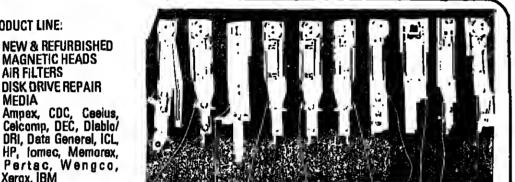
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PEOPLE I

Chilver appointed to **Advisory Board for Research Councils**

IN A move to forge closer links het ween government-financed basic and applied technology research and development, Sir Henry Chilver, new chairman of the Advisory Council for Applied Research and Development has been appointed o member of the Advisory Board for the Research Councils, ABRC.

Chilver's approintment follows:

On the allocation of the science budget – £482 million this year – among the UK's five research councils.

Commenting on his appointment to ABRC which runs to 1985, Chilver said that ooe of his main concerns would he to ensure that ACARD understands better the policies of the research councils. "My other main concern will appropriate that allocation of the science budget – £482 million this year – among the UK's five research councils.

Councils, ABRC.

Chilver's appointment follows the government's new terms of reference for ACARD, an advisory body on all matters relating to applied research and development. These call for greater co-ordination between ACARD and ABRC to promote the opplication of grow.

The policies of the research councils. "My other main concern will be to find ways in which research, particularly relating to information technology, can be turned to practical reality by manufacturing industry," he said.

As a member of ABRC, Chilver that ACARD understands better the policies of the research councils. "My other main concern will appointments have included the chairmanships of the Post Office from 1980 to 1981 and the Computer that ACARD understands better the policies of the research councils." My other main concern will appointments have included the chairmanships of the Post Office from 1980 to 1981 and the Computer that ACARD understands better the policies of the research councils. "My other main concern will appointments have included the chairmanships of the Post Office from 1980 to 1981 and the Computer that ACARD understands better the policies of the research councils." My other main concern will appointment to particularly relating to information technology, can be turned to practical reality by manufacturing industry, "he said.

As a member of ABRC, Chilver appointment shave included the chairmanships of the Post Office from 1980 to 1981 and the Computer that ACARD understands better the policies of the research, particularly relating to information technology, can be turned to practical reality by manufacturing industry," he said.

As a member of ABRC, Chilver appointment shave included the chairmanships of the Post Office from 1980 to 1981 and the Computer that ACARD understands better the policies of the research, particularly relating to information technology. These call for greater co-ordination between ACARD and ABRC to promote the opplication of government-funded research by industry.

■ Tony Sive has joined MSA as sales executive for the North-west.

He was previously a sales consultant at Dataskil.

Tony Sive has joined MSA as ters and a director of Pegasus Software.

■ John Somerwill is founding managing director of Seffconces.

■ Raymood Coleby has been appointed manager, information aystems, at Asda Stores. He was previously with Hepworths. John Knight has become senior sales executive at Ferranti Computer Systems. He was previously a marketing executive for Walter

■ Frederic Rappan has joined Portescap UK from Portescap Switzerland, where he was internal applications manager for the German-speaking market. He will be an internal sales engineer in the

be used in the community.

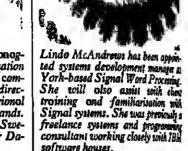
Entries for the competition, sponsored by Systime close on September 18. Details from Robert Hopkins (0423) 67265.

Colin Stanley has been appointed chairman of the Computer Retails Association. He is chairman of Brikat Development Holdings, managing director of HB Computer Retails Association.

Vice-chancellor of Cranfield ment departments and independent ABRC advises the government Institute of Technology since dent scademics and industrialists.



ing director of Ericsson Information Systems. He has been with the company for one year as marketing director and was previously a regional manager for ICL in the Midlands. EIS was formed by Ericsson of Sweden and incorporates the former Da tosoob operation.



APL in education. UK API User Group. Read Lecture Theatre, Imperial College of Science and Technology, South Kensington, London. 2.00. De-tails P. Goacher (03727) 21282.

international conference. IEE. University of York. Details IEE, 01-240 1871.

 Data administration working party. BCS. Details David Sten-ton, 01-486 3947. SEPTEMBER 23-24

Information systems — analysis and design working party. BCS.
Open University, Milton Keynes.
Details Guy Fitzgerald, 01-854

CONFERENCE

A WORKSHOP in structured system design is being held by BIS Applied Systems from August 14 at the Chatsworth Hotel is Worthing. The workshop last ix five days and is suitable for systems analysts, designers or programmers. Practical training in its techniques of structured systems design will be given. The court's residential and costs £615 + YAT. Details from Sarah Wall on 01-161

TO assist operations manager produce timely, reliable, accurate and cost-effective information on and cost-effective information deput, Frost and Sullivan has orminated a seminar entitled The Effective Use of Computer Operations Management, scheduled for October 6-8 and to be held at Ladon's Café Royale. Details five 104-112 Marylebone Lane, Locdon W1 5FU. Tel: 01-486 8371.

'Micros in community competition

YOUNG computer enthusiasts liv-ing in the North-east are being encouraged to channel their interests into a acheme that will benefit the community a competition organised by Harrogste Junior Chamber.

Non-professional analysts and programmers under the age of 19 are invited to submit o report of between 3,000 and 4,000 words, olus illustrations, describing s proect in which a microcomputer can

managing director of Saffronrose, a systems house based in Finchley, North London. He was previously

manager Cliff Cockrill. Robert Gordon, previously an indepen-dent consultant is Saffronrose's

North London. He was previously with IBM in systems support roles for 10 years. After that he established computer services functions for Sea Containers Inc, which was followed by five years' management in Iran and two years as an independent consultant in the UK. Marketing director is former NCR consultancy services and education consultancy services and education

■ Geoff Morris and Mike Phil-pott have joined CAE Group sales team. Morris joins as area sales manager for teleprinter equipment and Philpott as a sales executive

FRESH A

■ Desmond Cassidy and David Travers have been appointed executive directors of DPCE (Holdings), an independent com-puter maintenance company. They remain on the board of DPCE (UK), Cassidy as marketing director and Travers as operations director. Harvey Tordoff, previously DPCE UK's financial controller and company secretary, becomes financial director of the company and Rodney Marsball, previously support services man-ager, becomes purchasing direc-

■ Beverly Nattall has joined Pete and Pam Computers as sales co-ordinator (France) from Salford Iniversity, where she graduated in French and English.

■ John Sbenton, managing director of Peripheral Hardware, bas moved the company's bead-quarters to the Monkspath Indust-rial Estate in the West Midlands.

ITT forms

office-comms

division

ITT has formed an office informa-tion and communication systems

ters, North London. Chris James, formerly data communications

manager with ITT Business

Systems, has been named general manager of the new division. As well as developing and mar-

keting a new range of products for

the information processing and communications market, the divi-

sion will assume responsibility for

ITT's BS message switching

systems. The division will initially

employ 100 people.

James has been with the com-

pany since 1977, when he joined as

product marketing manager, data systems. He was promoted to data communications manager two

Database developments assembled in a useful reference text

Practical Database for Major, Minor and Micro Computers. F. H. George and P. A. Sarker. Chiltern Educational and Time Sharing Services. 483pp. 1981.

Naring Services. 483pp. 1981.

IN many areas of computing, applications of database technology have been slow in gaining momentum. This may have been because there has never been a full spectrum of database tools to enable the designer/implementer to exploit fully the available hardware.

However, the situation is ra-

However, the situation is ra-pidly changing. Database systems are now available not only on mainframes but on minis and micros. This book attempts to bring together some of the derelogments that have taken place

in each of these areas. Logically, the material in the ook is sub-divided into two parts. The first introduces and explains one of the piethora of database terminology and concepts. The second deals with operational

systems and some of the various packages that are available com-

Most of the first section of the book is presented in terms of Codasyl database philosophy — sets, records (owner and member), elementary items, DDL, DML and so on. The coverage of these topics is adequate and the chapters are well written. Unfortuoately, controversies and DBMS implecontroversies and DBMS implementation are less well covered and little mention is made of the relational database approach — even though two systems based on these ideas are described later in

The second (major) section of the text is devoted to a description of operational systems. These are covered in terms of three groups: mainframe packages, minicom-puter systems and database soft-ware for micros. Although the des-

computers there are descriptions of 1DMS, DMS-90, DMS-1100, IDS, EDMS, System 2000, Adabas, IMS, Total and RDS (a rela-

The first six chapters make reasonably pleasant reading, but the remaining 15 are less inviting since they contain a considerable amount of technical description. All of this is related to the specific systems outlined above. For this reason, the book might best be classified as a reference text rather

than one for general reading.

In producing this book the authors have brought together a significant amount of material.

Unfortunately, there are several spelling errors and the citations to data sources are poorly referenced. This would obviously prevent the reader from following up the material described in the text.

Philip Barker

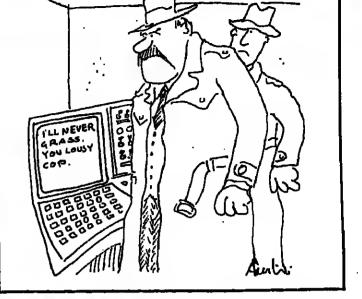
Guide to systems

Network Communications,

Lightwater, Surrey. 165pp. £25. UNLIKE general computing where the objective appears to be producing ever smaller processors and systems, the word processing industry seems intent on expand-ing rapidly in all directions. WP systems, once limited to a basic machine not much better than an

spected to be able to determin etween a WP cluster and network system and discuss such features as prompt menus, versatile maths facilities, typeface pitch, and line drawing programs – all of which options feature on the new 1TT Scribe at a cost of £5,214. At the other end of the WP price

scale, Olivetti supplies a system at a cost of £2,195, with middle of the technology range supplier Digital oroyiding systems ranging from £5,000 to £26,000.



Selecting, evaluating and implementing WP systems is a major feature of the latest Guide. Alongside comprehensive equipment listings are useful articles covering developing strategies for office automation, the performance of bureaux, facsimile and package

the established industry authority of everything to do with word processing, could well take a tip from the publishers of the equally authoritative Computer User's Year Book, and introduce colour pagination for the sections covering listing of suppliers and equip

clearly revealed in the latest edition. Now in its sixth year, the Guide has doubled in size in each year of publication.

Alan Simpson

US practices hold little that's new for the UK

THE programming practices of the title are the software de-velopment methods of six major American firms. Glass has compiled the book from reports pro-duced for the US Air Force compoter procurement agency. His stated intention is to demonstrate industry practice as opposed to academic theory.

Modern Programming Practices

- A Report from Industry.

Edit Robert Glass. Prentice-Hall laternational. 311pp. £16.45.

Sciences, Martin-Marietta, Sperry Univac, System Development, and TRW Defence and Space Systems Group), it is understandshle that they place rather more emphasis on software engineering tech-niques than the average UK instal-

> Glass feels that "a vein of golden information" is present in the book. The mining simile is apt, as the reader has to dig deep to find anything of value. Despite the emphasis on practice, the book has an academic feel about it.

Many of these "modern" academic feel shout it.

I cannot imagine who will read it, hut certainly oot the typical, hard-pressed DPM. I found it heavy going, with its American (Germanic) textbook prose style. Structured Walkthroughs, Chooge Control, Chief Programmer Teams, Quality Assurance, and many more.

As the six reporting companies are giants in the field (Boeing Computer Services, Computer As the six reporting companies are giants in the field (Boeing Computer Services, Computer Alan Steman) Micro book's big ambitions

Microcomputing. R. G. Ander-108 pp. £1.95. Lt is atructured more for the

THERE seems to be a general agreement among publishers that any book on microcomputers should be micro-sized. But prob-shy it is the micro user who is most in need of instruction and help. Though the book is small in size, the publishers of Microcomputing have far from micro ambitions, suggesting that the book will serve the needs of accountants,

It is atructured more for the aca demic than the practical husinessman, and a casual reader could easily believe it was a primary Basic handbook for the Commo dore Pet microcomputer.

Seen as a basic guide to Basic, and allowing for the low cost, the book provides a useful introducnon to microcomputing - parti-cularly if the reader happens to be





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The Computer Services Division in Swindon, Wiltshire of the House of Fraser

Embark on the construction of one of the most advanced digital networks in Europe

Honeywell, DPS 8, DPS 6's, Datanet 8's, DSA, DM IV, GCOS, ICL 2977, VME/B, IDMS.

Our client, the Computer Services Division of the House of Fraser plc, turnover £826m, is committed to a long term plan for the full computerisation of the group's business management systems using Open Network Architecture and Regional Databases to be connected by a Digital Network operating in real time.

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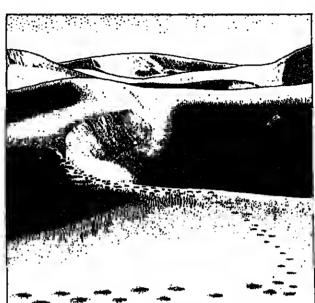
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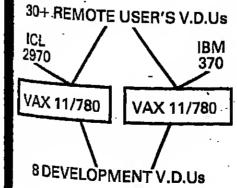
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(expanding DEC installation)

Our Client is a successful commercial Organisation and, as part of a commitment to distributed processing, is seeking to recruit an additional Software Programmer with around two years experience of minicomputer software, ideally having a knowledge of RSX 11M and MACRO 11. The Software Programmer will join a small team currently engaged in the implementation of a new VAX 11/750 and the support of two PDP 11/70's and a PDP 11/34.

Training in RSX 11M/MACRO 11 and VMS/MACRO 32 will be provided where necessary. Opportunities will then exist to gather experience in anumber of new areas of technology. The Software Programmer will provide a technical consultancy service to Users and, apart from general OS maintenance and enhancement, will become involved in:

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Other duties will include problem solving, sizing and forward planning.

For a Software Programmer with an interest in building a varied and fulfilling career in an expanding DEC installation, our Client can provide on-going training and the prospect of a challenging and stimulating career path.

Apart from an attractive starting salary, (due for review in October), our Client offers excellent terms and conditions of employment which include staff discounts, a pleasant, modern working environment and full relocation assistance.

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SYSTEMS PROGRAMMER

Circa £8500 (under review)

There is e vacency in our Computer Services Department at Bath ter an experienced systems nermmer

Applicants, who should have been systems pro-grammers for at least three years, should have experience in es meny as possible et the following

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with in-depth knowledge in at least one of these.

This post presents the opportunity for a skilled systems programmer to further his/her knowledge in an expanding environment with excellent conditions of service, including relocation package where applicable. Current salery ecales ere under review nationally, for subsequent increase from the 1st July.

For further details contact Jerry Lavis on Bath (0255) 313500 extension 387 or afternatively write er telephone for an epplication ferm to the Personnel Officer, Wessex Water Authority, Wessex House, Passage Street, Bristol, 852 OJO. Tel: Bristol 290611 extension 229/231, quoting job reference number 579. Application forms to be returned not later than Wednesday August 4th 1982.



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The Recruitment Officer,
Oxford Regional Health Authority,
Old Roed, Headington,
OXFORD OX3 7LF.

Tet: Oxferd 84881 ext. 246/268.

Closing date: 6th August, 1982.

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Sotable candidates will possess o degree in computer stance or equivalent qualification and should have a good sorking knowledge of UNIX and C or PASCAL. Experience of each of the local processing and blomestical research. A working knowledge of the French language would be useful but it is by no means essential EEC nestoriality would be an advantage. Applications accompanied by a curriculum vitae will, be reach in strictes confidence and should be sent directly. In the standard of the strict of the standard of the strict of the



SENIOR PROGRAMMER £10K-£11K

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on any method ands.

The should have four years DP experience with no least two years.

Listerably with DCE and VEAM experience

Bull with OFF in blands work in er n hisndly working atmosphers in modern offices off trost, directors holiday atmosphers. Seattlers and ---

The Royal Borough of Kensington and Cheisas t forms quoting Ref CW/778 from the Parsonnol Siervoe. Hormon Street, London, WS 7NX, Tel. 81-937-8502 (24 h iring sarvice) Closing date for applications: August 2, 1982.



University of London Computer Centre

Systems Integration

The University of London Computer Centra provides a National Computer Service to universities throughout the country. The Centre is equipped with Control Deta 7800, 8800, 8400 and Cyber 72 computers and has recently installed a 18 Mbyte Amdehi 470/V8 processor. A CRAY 15 processor will be installed in 1983 and can stready be accessed at a separate lecation. A new Natwork Communications System is under development to support a large network of remote batch and keyboard terminals with access to other public and private networks. The Centre wisher to recent a programmer with at least 2 years.

The Centre wishes to recruit a programmer with at least 2 years' experience in programming an either leage or mini computers. The succeedul applicent will join a toem of systeme programmers working on Systeme integration within the Oppieling Systeme Department, Duties will include integration and testing methods and monitoring the reliability of the running production systems. Cendidetos with knowledge end/or interest in testing end maintelning Network Communications Systems coftwers will be pre-terrod.

Selery commence with age, rolevant qualifications and experience will be in the range £8070 to £10,575 junder review) plus £1035 London Allowanco.

Further details and application forms are ovalleble from the Assistant Secretary, ULCC, 20 Guillord Street, London WC1M 1DZ, Telephone 01-405 8400, extension 341.

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Telephone 01-633 0866

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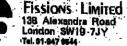
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The Council operators a disk based Honsywell (evel & rice extensive use is made of EOUAL softwars. A replacement OPS4 processor is duo in August 1982.

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s supervisory capacity.
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Camploted forms should be returned to the above address at leter then 9/8/82.

O. M. Bowle Chief Executive Officer

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Three additional programmers are now required to work on the next phese of this development. The posis will provide excallent opportunities tor lively exemple to the development in all sepects of transaction processing and esaccisted batch systems with on-tihe program development using Fortren, System and assembler lenguage.

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Other benefits include: Merit awards based on recognisable achievement, profit-related bonus, flexible working hours, non-contributory pension. BUPA, personal accident and health insurance, opportunities for overseas travel. Please contact David Hendry at:

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ROLFE & NOLFIN GOMPUTER SERVICES P.L.G.

the ultimate in DEC timesharing systems

● 5× PDP 11/70 ● VAX 11/750 ● PDP 11/44 ● RSTS/E ● VMS ● RSX ● BASIC+/+2 ●

● 7 Mb of core ● 2500 Mb of on-line storage ● 2 computer centres in the City ● On-line to 100+ clients in 8 countries ●

Rolfe & Nolan Computer Services plc is one of the U.K.'a fastest growing timesharing buresux - followers of the Stock Market will have noticed their share values very nearly double recently, after yel another record year.

Acknowledged leaders in the field of providing d.p. services to Commodity Brokers, they have also expanded into new applications areas and now offer a comprehensive range of commercial timesharing systems based on the latest DEC hardware and software, including:

commodity accounting; payroll; stock and production control; general accounting systems; financial modelling; word processing.

With further expansion planned, they now wish to appoint two experienced Programmer Analysis to become involved in all aspects of the design, development and implementation of complex interactive systems, liaising with and sopporting the company's clients.

Two Senior Programmer Analysts £10K — £12K

In addition to a high level of self-motivation, you should have:

- Sound academic qualifications
- At least 3 years' experience of DEC BASIC+ or
- In-depth knowledge of either RSTS, VMS or
- Strong commercial applications experience

The company has much to offer – varied applications involvement, promotion and salary reviews strictly on merit, an informal but professional working environment and excellent prospects to move towards project lesdership

For a shirtly confidential discussion on these opportunities, contact Burry Latchford on the multiber below of the Newick (STD 082572) 3197 inter 7.30 p.m. Alternatively, write to us as advising consultants quoting ref. 387 and enclosing a

initiel interviews will be conducted in London.

Barry Latchford Associates

Tel: (0444)

Blair House, 7 Hazelgrove Road, Haywards Heath, West Sussex RH16 3PH

459815/6/7

Quality of Management - 19

High cost of

a territory

Switzerland

Real Time Software for Process Control

Senior Software Engineers/Software Engineers

An expanding sub division of an International Company specialising in Process Control for Power Station Computer Systems and Energy Management Control Systems seek additional Engineers for permanent careers on English speaking Projects In Switzerland.

The senior positions fall into four categories and candidates should have relevant experience to work on the following areas:

Quality Assurance

- **★** Methods
- * Tools
- ★ Operating Systems
- ★ Programming Environment

Man Machine Communications

- ★ Display Systems
- * Piotters
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- ★ Engineering Consoles

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- **★** X25
- * Decnet
- * Systems Architecture

Power Applications Systems

- ★ Electric Network
- ★ Closed Loop Control

Software Engineers; we are looking for candidates to concentrate on establishing new standard Software. Successful candidates should have most of the following experience: A degree, 3/5 years' Real Time experience, PASCAL, CORAL, Assembler, VAX 7/80, PDP11, VMS, RSX11M and Industrial Systems, CW28/1

English Speaking Project

Telecommunications Software Development

We have been retained by an international telecommunications company to recruit several SOFTWARE ENGINEERS to develop and implement software for a NEW PUBLIC DATA SWITCHING SYSTEM, involving working on Operating Systems, Diagnostics, Telex applications and X25 interfaces.

Candidates should have a degree, 18 months plus Assembler experience, preferably in a Telecommunications environment on minicomputers. An in-depth knowledge of Real Time Operating Systems would be advantageous.

Successful Candidates may look forward to enhancing their career prospects, gaining valuable experience in an international environment. CW28/2

Interviews will take place in London later this summer. For further details on the above two companies, conditions of employment and living in Switzerland. Please send C.V. or write for application form quoting the reference number.

APRIL Advertising

Sales & Marketing Recruiters Ltd

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"A GROUND FLOOR OPPORTUNITY" - WITH NATIONAL RESPONSIBILITY

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We are seeking an experienced Manager with considerable held sales experience of Miniand/or Micro computers to establish a completely new sales operation dealing specifically with OEM Dealer outlets throughout the UK and operating from extensive

HOME COUNTIES

This will be a small but specialist operation with an anticipated complement of around G sales people within the initial period of development. This opportunity is therefore likely to suit applicants currently operating at Branch or Regional Sales Management level for a major manufacturer or in a sales management capacity for a senior Micro computer operation. Essential qualifications include the ability to recruit and motivate a dynamic and enthusiastic sales force, create an imaginative marketing strategy and formulate effective operational disciplines and policy

Please provide complete career details to Peter Hubble or Alandan have that draph does ago.

xford Street 39 Bore Street Lichfiel W1 (01) 734 9776 Staffs (05432) 56612.
Answering Service after 6 pm and weekends
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

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COMPUTER CONSULTANTS ARE YOU BORED WITH **CONSULTING? ARE YOU ALWAYS WORKING** AT ARM'S LENGTH?

Star Computer Group is a rapidly expanding, growth-orientated public company supplying minicomputer systems to commerce, industry and to the occountency profession.

Wa era tooking for people with computer con

After training, you will take over the menagement of one of our activers applications. You will have considerable client liaison, and therefore be accustomed to dealing with directors and partners of significant organisations.

Medium- end long-term prospects in the group's managen term are excellent and appropriate candidates will be expecte echieve repid progression.

infuel remuneration will be dependent on experience and poteitial end benefits include a company per and panalon schama.

For further information, plasse send a.v. in confidence to:

Cavid Blachner
Meneging Olrector
STAR COMPUTER GROUP PLC
S4 Great Eastern Street
London, EC2A 30R
or ring for further deteils:

Tel: 01-789 7833

BOX NUMBERS

£25K) QUALITY CAR

Our client is an established software house/consultancy will highly euccessful and profitable business built on soph licated mini and micro-based solutions for the leading inten-tional eccountancy firms.

A dramatic increase in recommendations to thair clients had created the need to appoint an experienced seleaman with a successful track record in lerge mini-based systems and a broad commercial knowledge to hasd up this new sector. ectantial directorship and equity perticipation.

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LONDON BOROUGH OF SOUTHWARK

Operations Support Officer (AP4)

27,509 to £8,145 (Salary under review)

We are tooking to recruit an Operations Support Officer for our Computer Services Olvision.

Computer Services Olvision.

The Council utilies an ICL 2888 running VMEB & DME. Tho successful applicant will have a minimum p. 5 years computer experience, the majority of which will have topp gained in a lerge ICL 2800 environment.

The post involves providing first line su port to all production applications, it is therefore essential that a successful opplicant has everying knowledge of SCL.

The dies trings has the include member by to an active a rorts and social alub and subsidiated canteen factures. The officers 01-701 2870 any time for an application form or write.

Toleghone 01-701 2870 any time for an application form, or write, on a postcard to: The Parsonnel Officer, London Borough of Southwark, 25 Commercial Way, London S.E.15 60d. Please quote reference: CW/9/3/1985 and too title. Lest data for receipt of completed Application Forms: 5.8.82.

with no staff IF "management by disas- ment strategy of shopp ter" applies to any aspect of sales management, it is the chance that they may have a

recruiting of sales per- few top-class salesmer sonnel. I would say that a good three-quarters of the demand we get at Sales and Marketing Recruiters is from sales managers who have an appareotly sudden, immediate and desperately urgent need for salespeople tial activities, each of which is likely to demand a signifi that they had barely consid-

- ered up to a few daya before. Discuss, establish job Io some cases they are specification and create starting out on a new selling advertising copy will take year or a special sales can. about a week;
- paign on the assumption that all they have to do to Approve copy, create and approve artwork one week; of salespeopte is to shove un & Lead-time for Press ap advertisement in the paper pearance - nne week;
- or telephone a recruitment Collect response and egree dates for initial interviews (agency) - nuc salesman mey have suddenly departed with questions of "Did he jump, or was he Complete elt initial in terviews, subject to can pushed?" pating into insig-nificence against the cost of
- didate availability having a territory with no sinff and the length of time; terviews, subject in canrequired to get a new rectain didate availability (client)
- nne week: One of the operatial of its O Complete finat inand responsibilities of these terviews, subject to cannumagement is the ability to

Having got the right kind

such things as setting to

weeks, 26 weeks, four week

respectively; a total of eight

It is at this point that the

sales manager begins to

agaiost commission earnings

s too short and that he

should bave started this

campaign 11 mooths ago. Okay, there is a lot

slack that could be taken up

in these notional figures, but

they are much nearer to real-

ity than most sales managers will give credit for and the

related cost of lost revenue is

Alan Williams

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anticipate recruitment, cools in order to facility early 3 Make job offering and action. While it is quotimahope for acceptance. ble that other que can Then, wait for notice to sometimes re ga without be worked in some cases warning, the contempor-tion of developes can be This will take about for seen well and of the event So, the whole business

if only for reasons of inadetakes about three months. quate per aimance. Recruitment needs related to busine, expansion ore clearly more predictable, long will it take before he can be expected to generate vet remarkably this typically revenues from his own has lattle apparent effect on forts? A reasonable wind: the ability of most sales tick is to add together the tanagers to take action beintroductory training period to the length of the typical

ore the eleventh hour!. The costs of having an unmanned sales territory can be appallingly high and vhile there are on truly effective means of accurately assessing them, one can gain aled to the anticipated profits that might be gained from the employment of a successful salesman.

In the case of a computer manufacturer, an individual salea target of £50,000 would be a reasonable kind of figure, if oot on the low side. If we assume a typical industry profit of 50% on selling price, then the cost of growth of business for a new

That puts into better perspective the need for giving priority to recruitment and justifies the apparently high cost of using specialist recruitment agencies and the considerable expense of

PUZZLE sdvertising, Surprisingly, few sales managers have a real aware-**ANSWER** ness of how long it takes to carry out a formal recruit-9056224 ment campaign and bow long it takes to get a 016224 salesman up to steam once he joins the company. Hav-ing made the decision to recruit, maoy managers appear to expect people of the required calibre on board lo a week or two, and revenue-earning sooo after. This is a considerable illu-

sion, for the reality can be enormously different. 10168342 I shall ignore the recruit-